PRESENTATION ON EVM

September, 2021

TOPICS

1. What is EVM (Ballot Unit + Control Unit + VVPAT)
2. History
3. Technical Expert Committee (TEC)
4. Technical Security
5. Administrative safeguards
6. Debate around EVMs- Explained
7. Court Judgements on EVM
8. Why Going Back to Ballot is not a Solution

1. What is EVM?

(Ballot Unit + Control Unit + VVPAT)

EVM (Ballot Unit + Control Unit + VVPAT)

Ballot Unit   **VVPAT**   **Control Unit**

- EVM consists of Ballot Unit, Control Unit and Voter Verifiable Paper Audit Trail
- Polling Officer presses the Ballot Button of Control Unit which enable the voter to cast his vote using Ballot Unit
- When a voter presses a button against the candidate of his choice in Ballot Unit, red light glow against candidate of his choice in Ballot Unit.
- A paper slip showing the **serial no**, **name** and the **symbol** of the candidate of his choice is generated and visible for about 7 seconds through transparent window of Voter Verifiable Paper Audit Trail

Control Unit

CONTROL UNIT- enables the Ballot Unit to accept vote from the voter and stores the vote cast
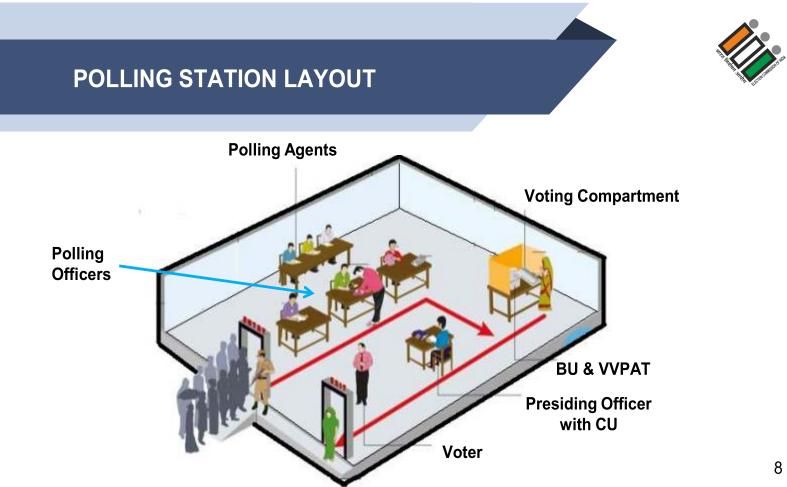.

Ballot Unit

BALLOT UNIT- the voter can franchise his/her vote by pressing a button against the candidate of his/her choice
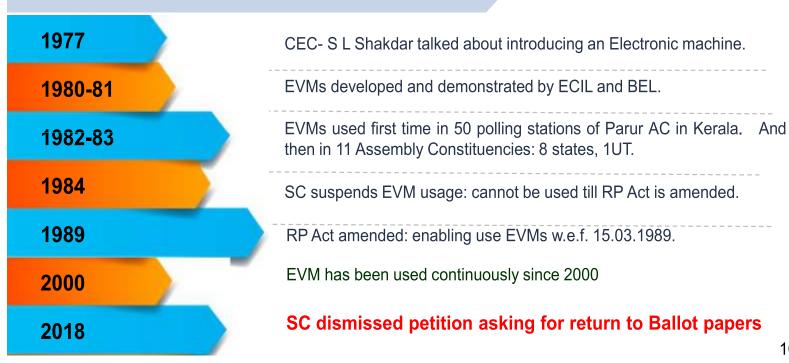
VVPAT

Voter Verifiable Paper Audit Trail- allows the voters to verify that their votes are cast as intended.

POLLING STATION LAYOUT
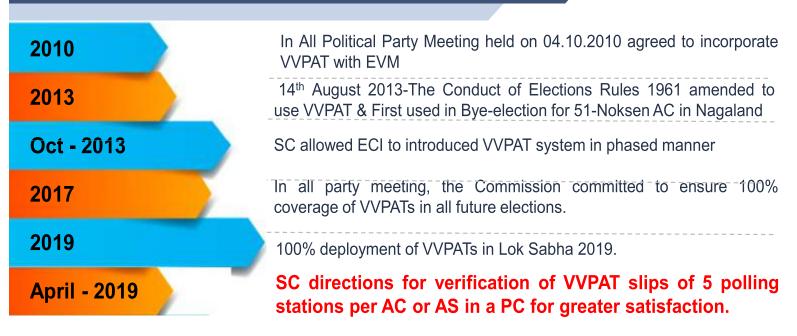
Polling Agents

Voting Compartment

Polling Officers

BU & VVPAT

Presiding Officer with CU

Voter

2. HISTORY OF EVM

Four Decades and more

HISTORY OF EVM – 40 YEARS (1/2)

1977 — CEC- S L Shakdar talked about introducing an Electronic machine.

1980-81 — EVMs developed and demonstrated by ECIL and BEL.

1982-83 — EVMs used first time in 50 polling stations of Parur AC in Kerala. And then in 11 Assembly Constituencies: 8 states, 1UT.

1984 — SC suspends EVM usage: cannot be used till RP Act is amended.

1989 — RP Act amended: enabling use EVMs w.e.f. 15.03.1989.

2000 — EVM has been used continuously since 2000

2018 — **SC dismissed petition asking for return to Ballot papers**

HISTORY OF VVPAT   (2/2)

2010
In All Political Party Meeting held on 04.10.2010 agreed to incorporate VVPAT with EVM

2013
14th August 2013-The Conduct of Elections Rules 1961 amended to use VVPAT & First used in Bye-election for 51-Noksen AC in Nagaland

Oct - 2013
SC allowed ECI to introduced VVPAT system in phased manner

2017
In all party meeting, the Commission committed to ensure 100% coverage of VVPATs in all future elections.

2019
100% deployment of VVPATs in Lok Sabha 2019.

April - 2019
SC directions for verification of VVPAT slips of 5 polling stations per AC or AS in a PC for greater satisfaction.

Since 2000, EVMs have been used in all elections: 4 Lok Sabha and 132 State Legislative Assemblies. Till date, >340 crore votes cast on EVMs.

3. TECHNICAL EXPERT COMMITTEE

INDEPENDENT EVALUATION

T E C- HISTORY & ROLE (1/3)

1st Technical Expert Committee (TEC) formed

January, 1990

TEC constituted for evaluation of upgraded EVMs Submitted an Evaluation Report in 2006

December 2005

Recommended use of the EVMs unanimously

April 1990

November 2010

Current TEC

- **Approves EVM Design**
- **Vets and seals the software**
- **Recommends continuous design improvement**
- **Recommends improvements in the manufacturing process**

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Composition of First Technical Expert Committee on EVMs – 1990

1. Professor S. Sampath, Chairman Technical Advisory Committee, Defence Research & Development Organization DRDO), Ministry of Defence.
2. Professor PV Indiresan of the IIT Delhi.
3. Dr. Rao C. Kasarabada, Director, Electronic Research & Development Centre (ERDC), Trivandrum.

Composition of Second Technical Expert Committee – Dec 2005

1. Prof P.V. Indiresan, Ex-Director, IIT Madras as Chairman of TEC.
2. Prof. D.T. Shahani of IIT Delhi.
3. Prof. A.K. Agarwala of IIT Delhi.

4 Eminent Professors from IITs: Renowned Experts in their Fields.

Prof D T Shahani,

Prof Emeritus, IIT-Delhi

Prof A K Aggarwala,

IIT Delhi

Prof Rajat Moona,

Director IIT Bhilai,

Former Director General CDAC

Prof Dinesh K Sharma,

Prof Emeritus, IIT Bombay

1   2

3

4

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4. TECHNICAL SECURITY

SECURE DESIGN AND MANUFACTURING PROCESS

Standalone Machine

Unauthorised Access Detection Module

Secured Development and Manufacturing

Most advanced Encryption techniques

Automated self diagnostics at every switch ON

Strong "mutual authentication capability"

No Radio Frequency transmission or reception capability

One Time Programmable (OTP)

Dynamic Coding of Key Presses

Real Time Clock for date and time stamping key presses

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SECURE DESIGN AND MANUFACTURING (2/5)

- **Standalone Machine**: EVM is a machine not connected with external world through wire or wifi or blue tooth or any network.

- **Unauthorised Access Detection Module (UADM)**: UADM embedded in the machine disables EVM permanently, if any attempt made to access microcontroller or memory.

- **Most Advanced Encryption Techniques**: Encrypted communication between Control Unit, Ballot Unit and VVPAT cannot be deciphered by tapping cables.

SECURE DESIGN AND MANUFACTURING (3/5)

- ❑ **Automated self diagnostics at every switch ON**: It checks EVM's standard features each time it is Switched ON.

- ❑ **Strong Mutual Authentication Capability**: The strong mutual authentication capability ensures that any unauthorised devices cannot interact with EVMs.

- ❑ **No Radio Frequency Transmission or Reception Capability**: Any tampering of ECI-EVM by coded signals by wireless, Bluetooth or WiFi is ruled out as EVM does not have any radio frequency (RF) communication capability, hence, cannot communicate through any wireless protocol.

❑ **One Time Programmable (OTP)**: The programme (software) used in these machines is burnt into a One Time Programmable (OTP) chip at the time of manufacturing so that it cannot be altered or tampered with.

❑ **Dynamic Coding of Key Presses**: Every key press is coded dynamically making it impossible for anyone to decode the signals between Control Unit or Balloting Unit or VVPAT.

❑ **Real Time Clock for date and time stamping key presses**: Every authorised or unauthorised key press is recorded with date and time stamp on real time basis.

SECURE DESIGN AND MANUFACTURING (5/5)

❑ **Secured Design Development & Manufacturing Process**:

o Manufactured by Premium PSUs- BEL & ECIL: Both deal with manufacturing of sensitive equipment critical to the safety and security of the Nation and have strong security protocols.

o SOFTWARE Developed in-house by BEL/ECIL. Fully vetted by TEC. Never sub-contracted.

o Secure Manufacturing: 4-level Physical/Process access Control, Regular frisking, Outside e-gadgets prohibited, CCTV Coverage, Access Data and Process Data logging, Alarm and Alert generation.

o Third Party Testing by Directorate of Standardisation Testing and Quality Certification (STQC) as per Standards & Quality Process set by TEC. Software is also tested & checked by STQC for authenticity.

5. ADMINISTRATIVE SAFEGUARDS

SECURE PROCESS ON HANDLING
& MANAGEMENT OF EVMs

ADMINISTRATIVE SAFEGUARDS

Stakeholder Participation	Allocation and Movement	First Level Checking (FLC)	Randomizations	Candidate Setting
Multiple Mock Polls	Poll Day Checks	Poll Closure & Transportation	Storage and Security	Counting Day Protocol	EVM Management System (EMS)

Presence of political parties/candidates/their representatives in every election related process is mandatory

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STAKEHOLDER PARICIPATION

Active Participation of & Witness by Political-Parties/Candidates in **All Processes**

Opening & Sealing of EVM Warehouses & Strong-rooms

1

2

First Level Check (FLC)

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3

List of EVMs after 1st & 2nd randomization shared to political parties/candidates

Counting Process

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4

Conduct mock poll and receive mock poll results

Candidate Setting & Symbol loading-Sign on Paper Seals on EVMs after all processes

Participation During FLC

Presence of political parties/candidates/their representatives in every election related process is mandatory

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ADMINISTRATIVE SAFEGUARDS

ALLOCATION & MOVEMENT

Planned Allocation

EVMs are allocated to poll going State by the Commission.

Received by District Election Officer (DEO) who is personally responsible for secured storage.

EMS used for inventory management of all EVMs nationwide for the sake of transparency.

Secured Transportation

- Movement of EVMs mandatorily managed through EVM Management System (EMS).
- Only Containerized/Sealed Trucks used.
- All Trucks sealed with Lock and Paper Seals.
- Mandatory GPS tracking of EVM vehicles.
- All movement under 24X7 Police Escort.
- Videography done of shifting process.
- Political parties informed in advance about the opening, stocking and sealing of warehouses while moving EVMs.

Presence of political parties/candidates/their representatives in every election related process is mandatory
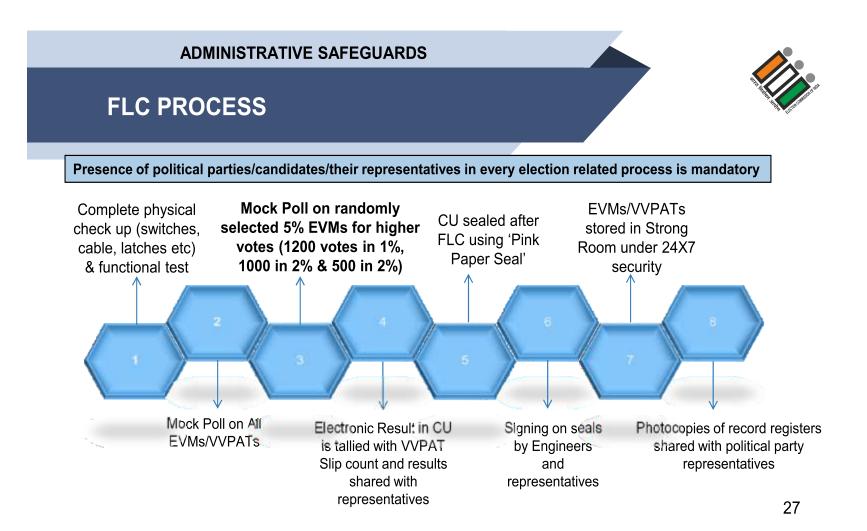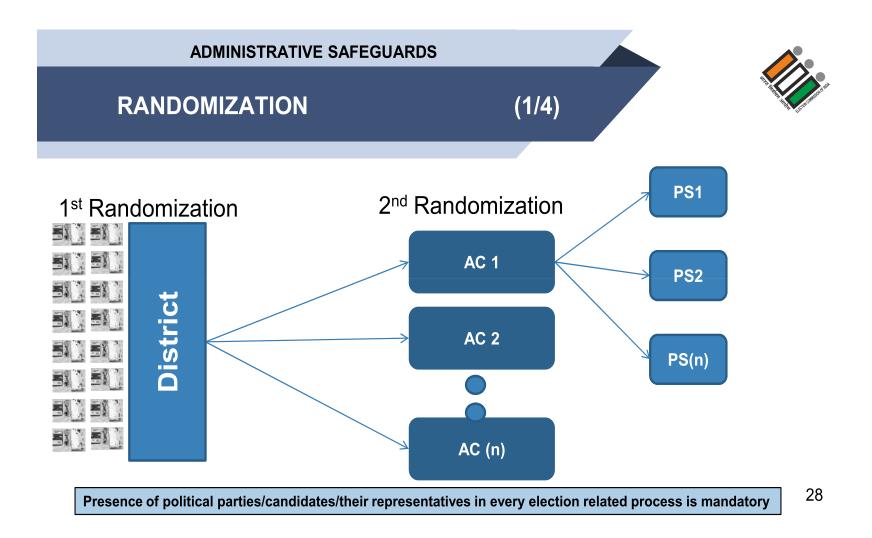
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FIRST LEVEL CHECKING (FLC)

- FLC is mandatorily done in the presence of representatives of political parties.
- Fully sanitized hall under videography and full security.
- Full functionality and behavioural check is done on every EVM.
- Defective (non-functional) EVMs are kept aside and not used in election.
- FLC status captured in EMS.
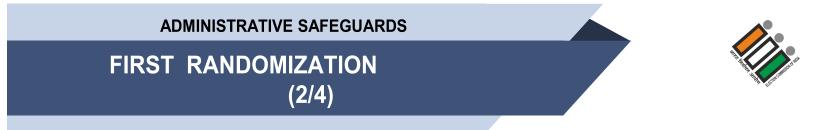- Introduction of Pre-FLC unit on pilot basis to mitigate human errors during FLC

Presence of political parties/candidates/their representatives in every election related process is mandatory
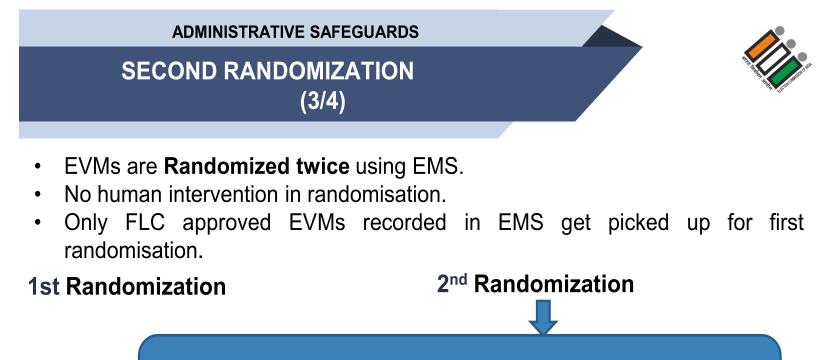
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FLC PROCESS

Presence of political parties/candidates/their representatives in every election related process is mandatory

Complete physical check up (switches, cable, latches etc) & functional test

Mock Poll on randomly selected 5% EVMs for higher votes (1200 votes in 1%, 1000 in 2% & 500 in 2%)

CU sealed after FLC using 'Pink Paper Seal'

EVMs/VVPATs stored in Strong Room under 24X7 security

Mock Poll on All EVMs/VVPATs

Electronic Result in CU is tallied with VVPAT Slip count and results shared with representatives

Signing on seals by Engineers and representatives

Photocopies of record registers shared with political party representatives

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RANDOMIZATION (1/4)

1st Randomization

2nd Randomization

District

AC 1

AC 2

AC (n)

PS1

PS2

PS(n)

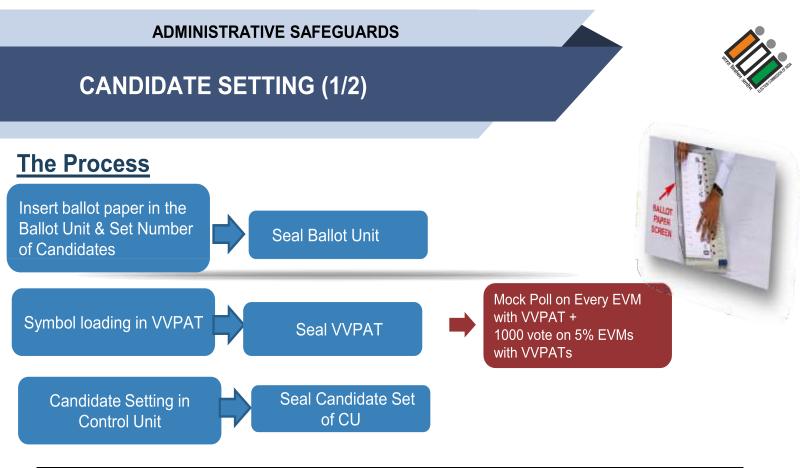Presence of political parties/candidates/their representatives in every election related process is mandatory

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FIRST RANDOMIZATION
(2/4)

- EVMs are **Randomized twice** using EMS.
- No human intervention in randomisation.
- Only FLC approved EVMs as per EMS get picked up for first randomisation.

1st Randomization

- Done after FLC
- To allocate EVMs from district, randomly, to a particular AC/AS.
- In presence of representatives of political parties.
- List of AC/AS-wise Randomized EVMs shared with political parties.

Presence of political parties/candidates/their representatives in every election related process is mandatory

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SECOND RANDOMIZATION
(3/4)

- EVMs are **Randomized twice** using EMS.
- No human intervention in randomisation.
- Only FLC approved EVMs recorded in EMS get picked up for first randomisation.

1st Randomization

2nd Randomization

- Done just before 'candidate setting'.
- To allocate EVMs available in an AC/AS to polling stations.
- In presence of candidates/election agents and list shared.

Presence of political parties/candidates/their representatives in every election related process is mandatory

RANDOMIZATION- THE FOUNDATION OF EVM SECURITY

(4/4)

- Till first randomization- no one knows **which EVM is going to which Constituency.**

- Till nomination finalization- no one knows **the sequence of names on the ballot paper.**

- Hence, till candidate setting **no one (not even RO/DEO/CEO/Commission) knows which button on which BU will be assigned to which candidate**, making even an attempt to tamper absolutely futile.

- Till 2nd Randomization- no one knows **which EVM will go to which PS.**

- Added to this is the **3 stage Randomization** of polling officials to different polling stations.

Presence of political parties/candidates/their representatives in every election related process is mandatory

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CANDIDATE SETTING (1/2)

The Process

Insert ballot paper in the Ballot Unit & Set Number of Candidates → Seal Ballot Unit

Symbol loading in VVPAT → Seal VVPAT → Mock Poll on Every EVM with VVPAT + 1000 vote on 5% EVMs with VVPATs

Candidate Setting in Control Unit → Seal Candidate Set of CU

Presence of political parties/candidates/their representatives in every election related process is mandatory

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CANDIDATE SETTING (2/2)

Security Measures

1   **Done only after finalization of the names of contesting candidates.**

2   **Fully sanitized hall under videography and full security.**

3   **Done in the presence of candidates or their agents.**

4   Introduction of **new SLUs** for loading symbols in VVPATs, and enabling simultaneous live viewing on TV monitor by all stakeholders

Presence of political parties/candidates/their representatives in every election related process is mandatory

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ADMINISTRATIVE SAFEGUARDS

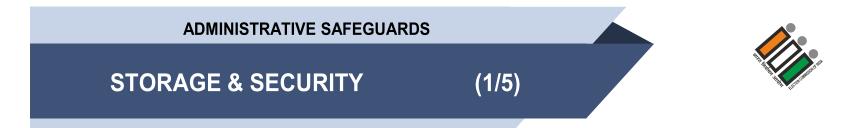# MULTIPLE MOCK POLLS

- Each EVM & VVPAT undergoes mock poll during FLC, and again during Candidate Setting. In addition 10% EVMs are randomly picked up for higher vote (500-1200) mock poll. Electronic result count is verified with paper slips count.

- 10% EVMs randomly taken out for Training and Awareness undergo Mock Polls several times.

- Before start of actual poll, Mock poll on each EVM alongwith VVPAT with at least 50 votes in the presence of polling agents. Electronic result count is verified with paper slips count.

Presence of political parties/candidates/their representatives in every election related process is mandatory

POLL DAY CHECKS

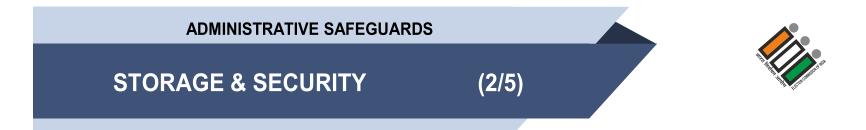- Polling Agents

- Central Armed Police Force (CAPF) and Micro Observers deployed at poling stations.

- Web Casting/CCTVs

- Frequent visits (Sector Officers /Senior officers/ Observers)

- 2 hourly reporting of votes polled

- Media vigil

Presence of political parties/candidates/their representatives in every election related process is mandatory

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POLL CLOSURE & TRANSPORTATION

Poll Closed on EVM by pressing CLOSE button – EVM cannot accept any further vote.

EVMs sealed in the respective carrying cases & polling agents sign on them.

EVMs transported back to the reception centres under armed escort. Candidates' representatives are allowed to follow them.
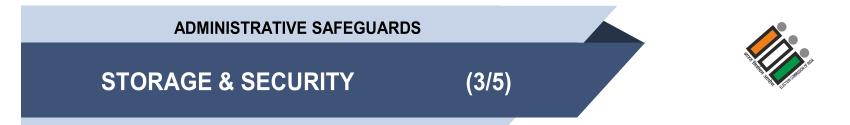
Presence of political parties/candidates/their representatives in every election related process is mandatory

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STORAGE & SECURITY (1/5)

- EVM Warehouse/Strong-room with **only One Entry Point.**
- Entry secured by a **Double Lock System** with DEO & Dy. DEO, each having custody of keys of one lock each.
- **24X7 Armed security.**
- **The opening & closing of EVM warehouse ONLY in presence of Political party representatives- advance written intimation mandatory.**
- Every EVM moved is managed by ECI through EMS.

Post Polling:

- Polled EVMs are stored in strong room having double lock system.
- Candidates allowed to put their **own seals on locks.**

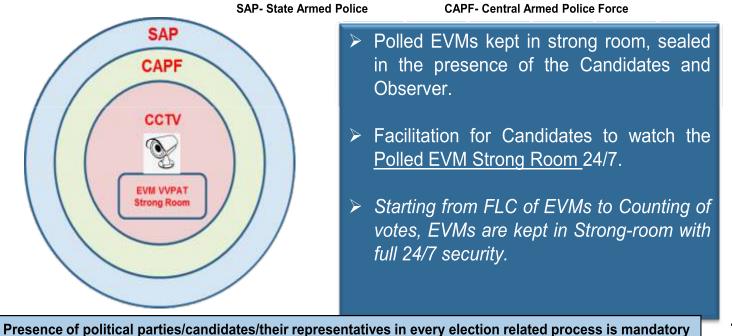**Presence of political parties/candidates/their representatives in every election related process is mandatory**

STORAGE & SECURITY (2/5)

Various layers of security of polled EVMs

1. **Unique ID of BUs, CUs & VVPATs** shared with political parties/candidates.

2. **Sealing of CU and BU with Pink Paper Seals** during FLC and commissioning respectively on which political parties and candidates put their signatures.

3. **Sealing of EVMs** before starting actual poll on which polling agents also put their signatures.

4. **Seals on carrying cases** of EVMs after closing of poll on which polling agents also put their signatures.

STORAGE & SECURITY (3/5)

5. **Double lock system** at the door of strong room on which candidates also put their own seals.

6. **CCTV f**eed to Candidates Camping Area to monitor strong room.

7. **Two Cordoned** round-the-clock security (Inner perimeter manned by CAPF and Outer perimeter by State Armed Police.

8. **Log-book and videography** of officers inspecting the two cordons daily.

9. **Candidates/their representatives are allowed to watch the strong room 24x7**

10. **24/7 security arrangement** for unused EVMs also.

Presence of political parties/candidates/their representatives in every election related process is mandatory

SECURE STORAGE IN STRONGROOMS TILL COUNTING (4/5)

SAP- State Armed Police   **CAPF- Central Armed Police Force**

- ➢ Polled EVMs kept in strong room, sealed in the presence of the Candidates and Observer.

- ➢ Facilitation for Candidates to watch the Polled EVM Strong Room 24/7.

- ➢ *Starting from FLC of EVMs to Counting of votes, EVMs are kept in Strong-room with full 24/7 security.*

Presence of political parties/candidates/their representatives in every election related process is mandatory

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STORAGE DURING ELECTION PETITION PERIOD (5/5)

- Election Petitions can be filed within 45 days of result declaration.

- EVMs (BU+CU) & VVPATs remain under sealed conditions till EP position is ascertained.

- EVMs and VVPATs under EP, are kept under safe custody of DEO (Strong Room) till final disposal of EP.

- Print on VVPAT Slips remains for 5 years.

- Remaining EVMs and VVPATs not in EP are now free for re-use.

Presence of political parties/candidates/their representatives in every election related process is mandatory

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COUNTING DAY PROTOCOL

- On the day of counting, strong room opened in the presence of Candidates, RO and Observer under videography.

- Round-wise CUs are brought to the counting tables from Strongrooms **under CONTINUOUS CCTV Coverage.**

- Unique ID number of the CU & the signed seals are verified and shown to the polling agents.

- EVMs are stored back in Strong Room in the presence of candidates/their representatives till the completion of the Election Petition period.

Presence of political parties/candidates/their representatives in every election related process is mandatory

EVM Management System (EMS)

- In house EVM Stock Management Software

- Barcode of every EVM is scanned into EMS every time it moves from one Warehouse to another

- All EVM Allocations done on EMS

- FLC status(OK/Rejected) captured in EMS

- EVMs Randomisation twice on EMS

- EVM sent for repair captured in EMS

- EVMs under EP marked in EMS

Presence of political parties/candidates/their representatives in every election related process is mandatory

6. DEBATE AROUND EVMs-EXPLAINED!

CLARIFICATION ON ALL ISSUES

DOUBTS CREATED AROUND EVM

Hacked EVM

Vote Stuffing after Poll Closure

Remotely Altered Control Unit Display

Defective Vs Tampered

EVM Challenges

Memory Manipulation

Replaced Microcontroller or Memory chips

Altered software code

International Comparison

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NO POSSIBILITY OF EVM HACKING

'Hacking' is unauthorised access to or control over computer network security systems for some illicit purpose.

In the case of ECI EVMs, the word **'Hacking' is not applicable** for following reasons:
- The EVM is a **stand-alone** machine and is not connected to any network through wire or wirelessly.
- The SW programme in the OTP Microcontroller can **neither be read nor modified.**

NO POSSIBILITY OF REMOTELY ALTERED DISPLAY THROUGH WIRELESS COMMUNICATION

It is alleged this can be done by either replacing the original display module with another display fitted with a wireless device or inserting an extra circuit board which can communicate with an external unit via a wireless device and tamper the result by controlling the CU display used for declaring the result.

○ Such a modification would require unfettered access to the EVM after FLC – **Ruled out.**

○ In M3 EVMs the display is mounted in the UADM. Any attempt to open the UADM will send the EVM into Factory Mode- **Ruled out.**

MEMORY MANIPULATION RULED OUT

- It is alleged that voting data can be altered by clipping a Memory Manipulator IC to the memory chip where Vote data is stored.

  - This would need,
- Full and free access to CUs after the Polling is over- **Ruled Out !!**
- Breaking the seals and locks of the strong room in the presence of two layers of security plus the representatives of the candidates camping near the strong room- **Ruled Out !!**
- The memory is inside the microcontroller which itself is inside the UADM- **Ruled Out !!**

REPLACEMENT OF MICROCONTROLLER/MEMORY CHIP or MOTHERBOARD IMPOSSIBLE (1/2)

Administrative Safeguards

- Chip replacement would require access to EVM Warehouses – **Ruled Out.**

- Any chip replacement before FLC will get caught during FLC.

- Chip Replacement after FLC would require access to Strong Rooms and breaking of EVM Pink Paper seals– **Ruled Out.**

- Microcontroller is inside the UADM and cannot be accessed without putting the EVM in Factory Mode- **Ruled Out.**

Technical Security

- BUs and CUs communicate only amongst themselves after mutual authentication and cannot be connected to any other machine. Thus, **any modified EVM (with microcontroller /memory changed) would not be usable** even if someone is able to hypothetically bypass security arrangements and modify EVM.

TAMPERED SOURCE CODE "TROJAN" RULED OUT

- It is alleged that Trojan can be introduced in the following manner
    - by reprogramming the chip, or
    - by the chip manufacturer during fusing of the software.

➢ Re-programming **Ruled Out** as these are OTP chips.
➢ Code tampering by the chip manufacturer **Ruled Out** as the software is ported by BEL/ECIL in their factories in the highest security environment.

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NO POSSIBILITY OF VOTE STUFFING AFTER POLL CLOSURE

Administrative safeguards
- Poll closed by pressing the "CLOSE" button on the CU after last vote, Representatives of candidates who are present signs on the seals.
- EVM seals checked on counting day.

What if seals broken and votes stuffed while transporting?
- EVM does not accept any votes after CLOSE button pressed in CU.

What if CLOSE button not properly pressed and Votes Stuffed while transporting?
- Poll Closure time recorded in the PO's diary and any votes polled in the EVM after this time can be identified due to time stamping of key presses.

DEFECTIVE/NON-FUNCTIONING VS MANIPULATION/TAMPERED   (1/2)

- **Tampered** machine is one which would behave in a predefined biased manner to favor someone.

- **Malfunctioning** machine is one which would randomly behave erroneously, but without a predefined biased manner.

- **Defective or Non-functioning** machine is one which becomes inoperative.

- While 1-2% EVMs may become Defective/Non-functional (and are replaced with good EVMs), **no case of Malfunctioning EVM (i.e. one recording wrong vote) ever reported.**

- **Question of Tampering absolutely ruled out** due to several layers of technical and administrative safeguards.

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DEFECTIVE/NON-FUNCTIONING VS MANIPULATION/TAMPERED   (2/2)

Defective/Non-functional	Manipulation/Tampering
An EVM can be said defective/non-functional, if they do not work due to any mechanical/electronic fault.	An EVM can be said manipulated/Tampered, if someone has made unauthorised alteration to interfere in its working. The same is ruled out due to technical security implemented in EVM and administrative safeguards prescribed by ECI.
Dictionary meaning- 'Failing to work or function properly'.	Dictionary Meaning- 'to interfere in an illegal & disruptive manner or to make alterations or adjustments, especially secretly so as to subvert an intended purpose or function.
EVMs, like any other machines can become non functional. Such defects get detected during the 3 mock polls and are replaced.	A tampered EVM must behave in a pre-defined and biased manner to favour a particular candidate and this partisan behaviour of the machine must be replicable/demonstrable.
All such defective EVMs are promptly removed from the election process and replaced with a full functional EVM.	No evidence of any incident of any EVM Tampering, ever has been produced.

❖**However, <u>No incident of EVM tampering ever found</u>.**

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Defective EVMs

EVMs that fail to function due to any mechanical, structural or physical defect like faulty switches, broken button, faulty connections etc.
However, these **NEVER record a Wrong Vote**.

- EVMs are checked for defects 3 times - during FLC, candidate setting, before start of poll.

- Serial Numbers and defects of these EVMs are noted and EVMs are sent to the manufacturers for analysis and repair.

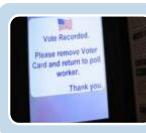- Manufacturers follow same security protocols during repair as they do for manufacturing new EVMs.

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Electronic Voting (Fully /Partially)

- **19 Countries** using electronic voting in some form through EVMs (Direct Recording Machines), some with Paper Trail.
- India, USA, Canada, Australia, Belgium, Bulgaria, Italy, Switzerland, Mexico, Brazil, Chile, Peru, Venezuela, Armenia, Namibia, Nepal, Bhutan, Bangladesh.

Electronic Counting

- **13 Countries** are using e-technology for counting of votes
- Argentina, Brazil, Venezuela, Dominican Republic, Lithuania, Bulgaria, Belgium, Australia, South Korea, Philippines, Mongolia, Bhutan, Namibia.

Country Specific Details

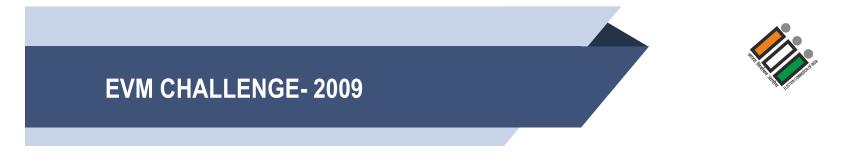**Other countries using EVMs (DRMs):**

USA, Australia, Belgium, Bulgaria, Italy, Switzerland, Canada, Mexico, Argentina, Brazil, Chile, Peru, Venezuela, Namibia, Nepal, Bhutan, Armenia, Bangladesh.

❖Currently, in the **USA**, the Direct Recording Machines are used in 27 states, among which paper audit trails are used in 15 states.

❖The other voting methods include: Optical Scan Paper Ballot Systems, Ballot Marking Devices, and the Punch Card Ballot.
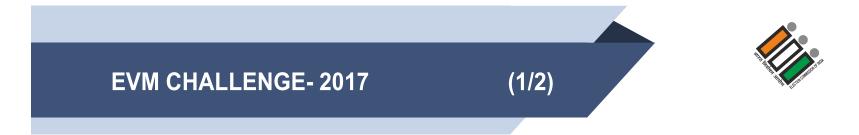
ECI EVM	Foreign EVM
Standalone	Mostly networked
Manufactured in Premium PSUs	Manufactured entirely by private entities
Verified and certified by an independent Technical Experts Committee	No such robust and independent certification/ checks
Data is stored internally and not transferrable by any device	Voting data recorded in the DRM is transferred by means of CD, etc
Full end to end security protocol and administrative safeguards for the use, storage, transportation and tracking	No such protocols, e.g. in Ireland
Administrative and physical security as per legal framework across the country.	No such legal framework, e.g. in the Netherlands
Voter verifiability and auditability of every vote cast	Lack of such facility in the NEDAP machines- un-Constitutional by German Supreme Court as lacked public examinability

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EVM CHALLENGE- 2009

- Commission organized an **EVM Challenge** w.e.f. **3rd – 8th August 2009.**

- Political Parties, Petitioners before various Courts and some individuals, who

- 100 EVM brought from 10 States were offered for demonstration of alleged tamperability in presence of technical expert group, representative of manufacturers and ECI Officers.

- None of the persons could actually demonstrate any tamperability of the ECI-EVM.

- Commission organized an **EVM Challenge** on **3rd June 2017.**

- All National and State Political Parties invited to participate in the Challenge.

- Parties allowed to pick EVMs of their choice from the 5 poll-gone States (UP, Punjab, UK, Goa, Manipur), which were securely held in the Strong rooms under 24*7 armed security.

- Parties given opportunity to demonstrate EVM manipulation/tampering in the votes recorded in the EVMs of their choice, as variously alleged earlier.

- **NO Political Party participated** in the Challenge.

- **Only 2 parties i.e. NCP & CPI-M reported to venue, ONLY TO UNDERSTAND THE EVM PROCESS BETTER and were given detailed briefing.**

- The credibility and integrity of ECI-EVMs has always remained perfectly intact and unscathed.

7. PAST JUDGEMENTS

Hon'ble High Courts: JUDGEMENTS

❑ **Karnataka High Court 1999**

'*This invention is undoubtedly a great achievement in the electronic and computer technology and a national pride*'.

❑ **Madras High Court 2001**

'*There is also no question of introducing any virus or bugs for the reason that the EVMs cannot be compared to personal computers.*'

❑ **Kerala High Court 2002**

The High Court recorded its appreciation on the efficiency of the mechanism of detecting votes cast by impersonators. Upheld by the Hon'ble Supreme Court in 2003.

Hon'ble High Courts: JUDGEMENTS

❑ **Bombay High Court: Order dated 23.02.2018:**

The Bombay High Court ordered a detailed **Forensic Examination** of the EVMs from CFSL, Hyderabad for checking any manipulation etc. **The CFSL report clearly ruled out any tampering, alteration or manipulation in the EVMs.**

❑ **High Court of Madhya Pradesh: Order dated 05.12.2018:**

In Writ Petition (Civil) No. 28016/2018 Naresh Saraf Vs ECI & Anr, Hon'ble High Court of Madhya Pradesh expressed satisfaction at the **Security and Storage Protocols** for EVMs and VVPATs established by the ECI and rejected petition to give directions for any changes.

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Hon'ble High Courts: JUDGEMENTS

❑ **High Court of Gujarat: Order dated 19.03.2019:**

"....*as will be evident from the extensive reproduction of the status report on EVMs/VVPATs, the system of registering vote of the voter and reflection of his vote has become more transparent and apparent to regain the voter's confidence in the system. What essentially was the object of introduction of the VVPATs was the restoring of the voter's confidence by logging and registering of his vote correctly in the EVM. The Voter Verifier Audit Trail as the name suggests assures the voter of his vote having been correctly recorded in the system..*" ***Once the object of the audit of the voter's vote, from his perception is achieved, who is the end consumer of the franchise, the mere apprehension voiced by the candidate, pales into insignificance***

Hon'ble High Courts: JUDGEMENTS

❑ **High Court of Delhi: Order dated 03.08.2021:**

• Dismissed plea seeking to stop the use of EVMs

• Imposed a fine of Rs. 10,000 on the petitioner terming the petition as a 'Publicity Interest Litigation' based on hearsay and 'baseless allegations and averments'.

❑ **Order dated 22.11.2018:**

In Writ Petition (Civil) No. 1332/2018, Nyaya Bhoomi & Anr Vs ECI, Hon'ble Supreme Court dismissed the petition requesting for return to Ballot paper system.

Upon hearing the counsel the court made the following **ORDER-**

"Having heard learned counsel for the petitioners and upon perusing the relevant material, we are not inclined to entertain the writ petition. The same is, accordingly, dismissed."

The Hon'ble Supreme Court on VVPAT counts (2/2)

❏ **Order dated 08.04.2019:**

- *"We are certain that the system ensures accurate electoral results."*

- *"Verification of VVPAT slips of 5 Polling Stations per Assembly Constituency or Assembly Segment in a Parliamentary Constituency would lead to greater satisfaction."*

- **Review Petition** against above order dismissed on 07.05.2019.

❏ **Order dated 21.05.2019:**

The Supreme Court on 21.05.2019 dismissed a PIL seeking counting of VVPAT slips of all EVMs while **rebuking** the petitioner NGO **for making a "mockery of democracy"** by moving the court despite a clear ruling by the apex court directing counting of VVPAT slips of five Polling Stations per assembly segment.

Why Going Back to Ballot not a Solution (1/2)

1. Average of around 2000 invalid votes in each Constituency when ballots were used.

2. Vote stuffing was very easy with Ballot papers. EVMs designed to allow only 4 votes per minute ruling out vote stuffing.

3. Counting of Ballot Papers was always prone to manual errors. EVM counting is both quick and accurate.

4. Retrograde step in the era of Technology when even financial transactions are done electronically.

5. Ballot papers are made of wood pulp and hence made at a cost to environment.

6. India is the largest democracy in the world with about 93.7 crore registered voters unmatched in scale and complexity.

7. There is a clear need to leverage on technology to make the voting process more efficient and accurate compared to the manual ballots.

8. Since the introduction of VVPATs, more than 113 crore voters have cast their votes with full satisfaction & ONLY 25 (twenty-five) complaints received u/r 49MA, which were all FOUND TO BE FALSE.

9. Till date, in 61 (Sixty-one) instances RO has allowed slip counting since 2017. All counts matched.

10. In Mandatory Verification of VVPAT slips count no case of a vote cast for Candidate 'A' getting transferred to candidate 'B'.

THANK YOU