

# Electronic Voting Machine(EVM) & Voter Verifiable Paper Audit Trail (VVPAT)



IIIDEM

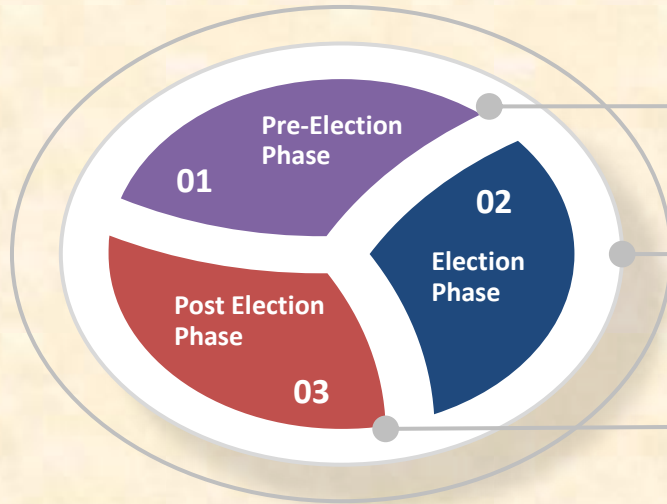
Election Commission of India

# DISCLAIMER

This PPT on EVM-VVPAT is for familiarizing the various officials, functionaries and stakeholders of the Elections to State Legislative Assembly conducted by the Election Commission of India, about the Process, Legal Provisions, ECI Guidelines etc relevant to these elections.

Contents of this PPT are not exhaustive and for any specific clarification, reference should be made to the relevant provisions of Law and/ or the Instructions of The Election Commission of India on the subject, which as updated from time to time would prevail over contents of this PPT, in case of any difference.

# Different Phases of Elections

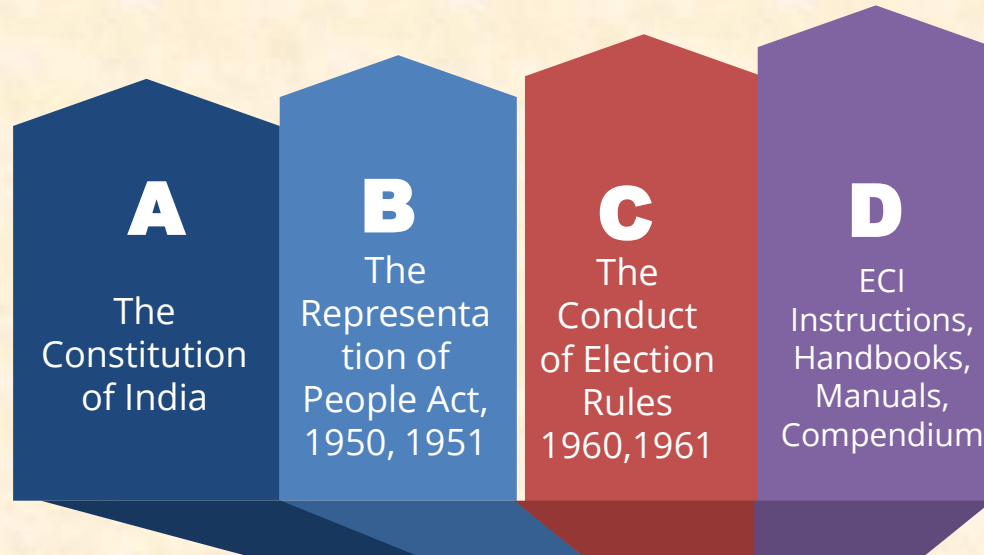


This phase starts generally one year / 6 months before the elections and extends up to the date of the announcement of elections. This phase is characterized by Election Planning and Electoral Roll preparation

This phase is the most important phase which starts from the date of the announcement, runs through the poll day, and ends on the conclusion of counting

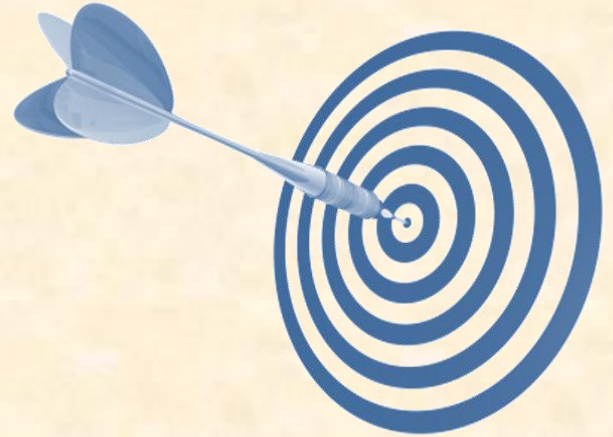
This phase signifies the time when the reports are generated and post audits are done after the end of the elections.

# LEGAL PROVISIONS RELATED TO ELECTIONS



# AGENDA OF THE PRESENTATION

1. Introduction
2. Legal Provisions
3. Examples of Violation of EVM-VVPAT Protocol and Guidelines
4. Technical Security
5. Administrative safeguards



# Introduction

The use of Electronic Voting Machines has revolutionized the Electoral System and introduction of Voter Verifiable Paper Audit Trail system has provided greater transparency to the poll process.

This Session on Electronic Voting Machine and VVPAT will familiarize the Election machinery with the genesis of the Electronic Voting Machine, Process of its Development, Procurement, Storage, legal provisions and use of these machines in Elections

# Legal Provisions for the Use of EVM-VVPAT

## Legal Provisions

**01** The RP ACT, 1951, Section 61A

**02** Conduct of Election Rules,

1961  
Rule 49A to 49X- Voting by EVM,  
Counting of Votes recorded in EVM-  
Rule- 50-61, 66A

**03** ECI Instructions on EVM

**04** Manual on EVM-  
VVPAT

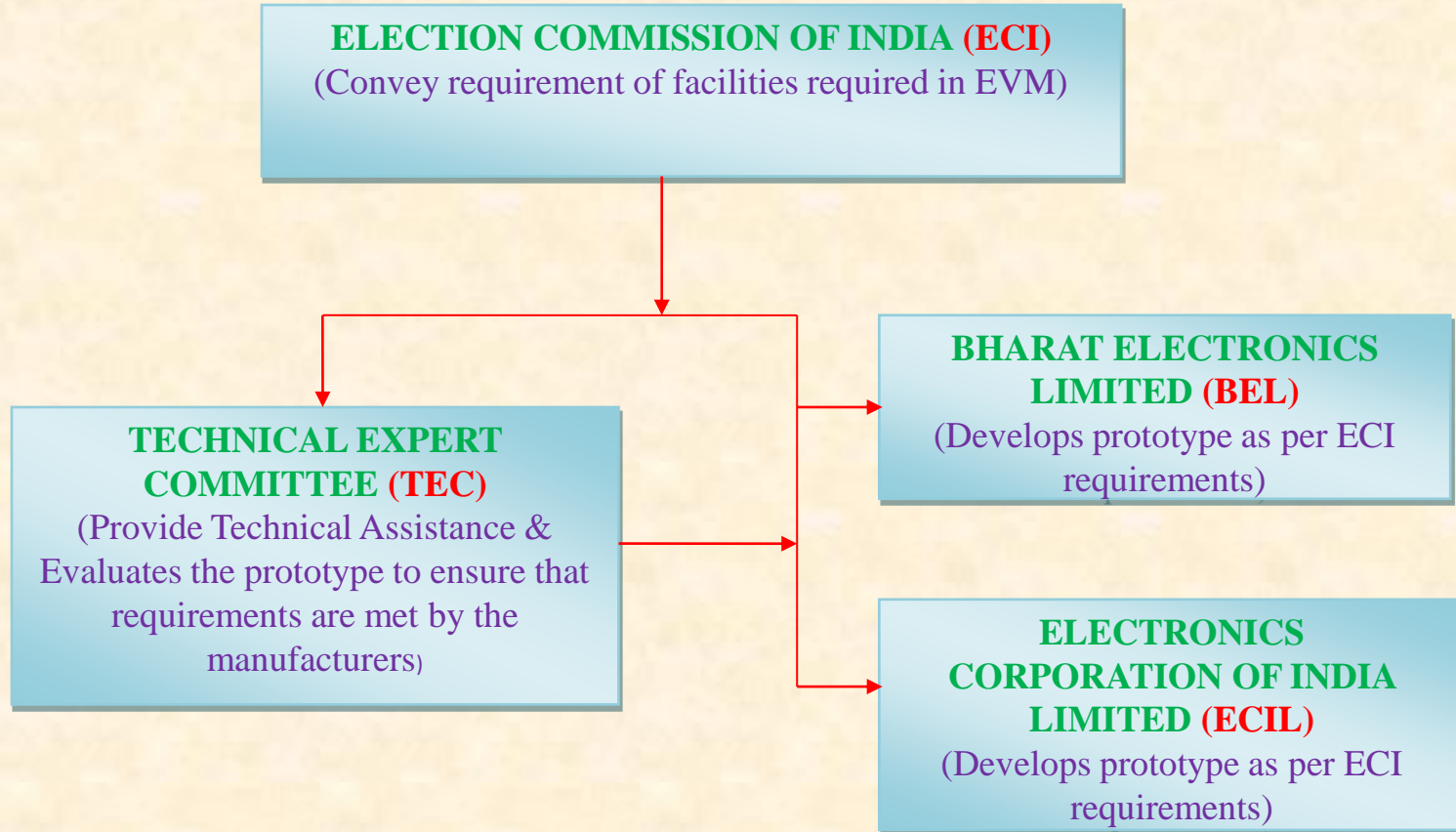
**05** RO Handbook

**06** Presentation on EVM-  
VVPAT

**07** Status Paper on EVM

# FLOW CHART (EVM PROCESS AT A GLANCE)

## Concept and Designing of Electronic Voting Machines (EVMs)



# Procurement of EVMs

**ELECTION COMMISSION OF INDIA (ECI)**

{Place a Purchase Order to Manufacturers (BEL & ECIL) on 50:50 basis & allocate consignee (States/UTs) to whom supply is given}

**BEL & ECIL** : Manufacture required number of EVMs & deliver to concerned District

**STATES & UTs** : (Allocate EVMs at District Level and intimate to manufacturers)

**Districts** : Receive EVMs and issue Acceptance Certificate. Store the EVMs at EVM Warehouses

# 1. What is EVM?

**(Ballot Unit + Control Unit + VVPAT)**

# EVM (Ballot Unit + Control Unit + VVPAT)



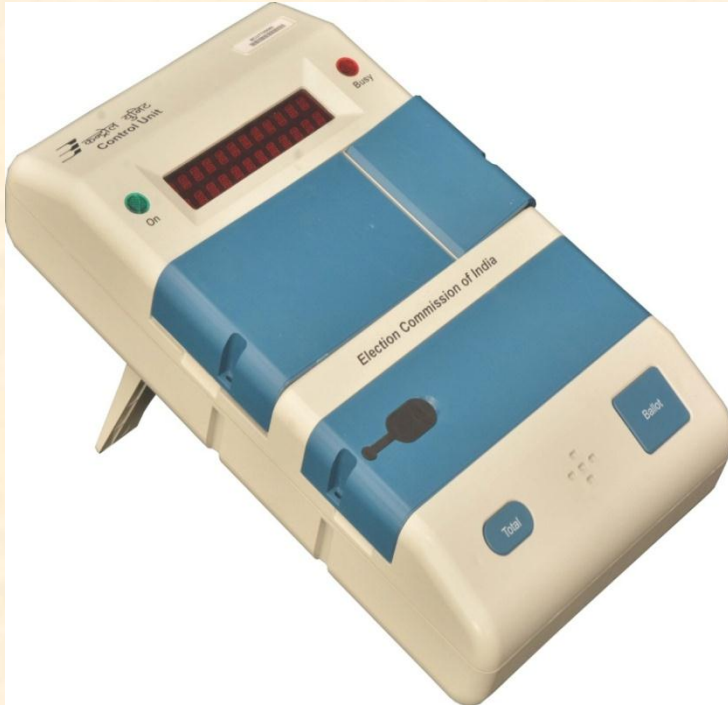
**Ballot  
Unit**

**VVPAT**

**Control  
Unit**

- EVM consists of Ballot Unit, Control Unit and VVPAT
- 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 VVPAT

# 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

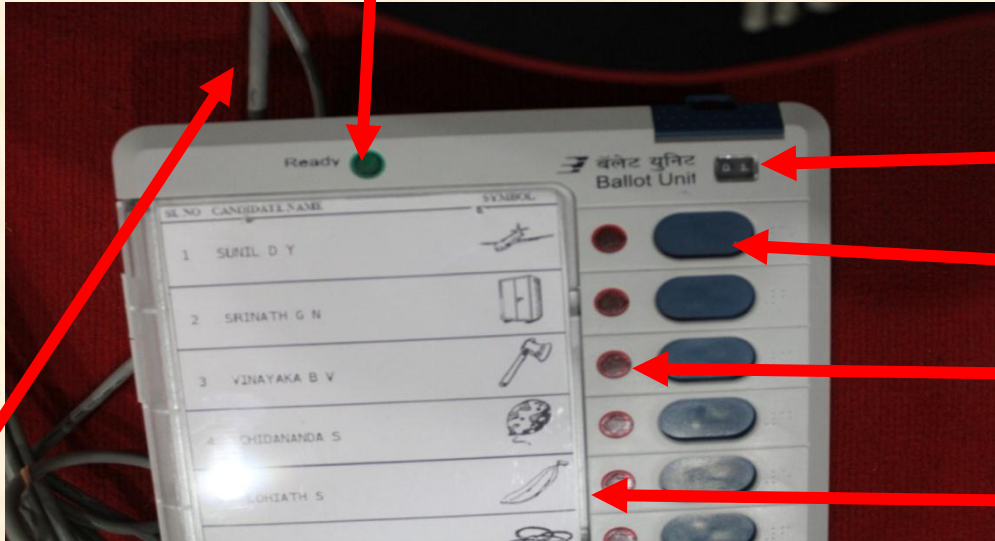
# VVPAT



**VVPAT-** Allows the voters to verify that their votes are cast as intended.

# EVM – Ballot Unit - Details

Ready Lamp (Green)



Thumb Wheel Window

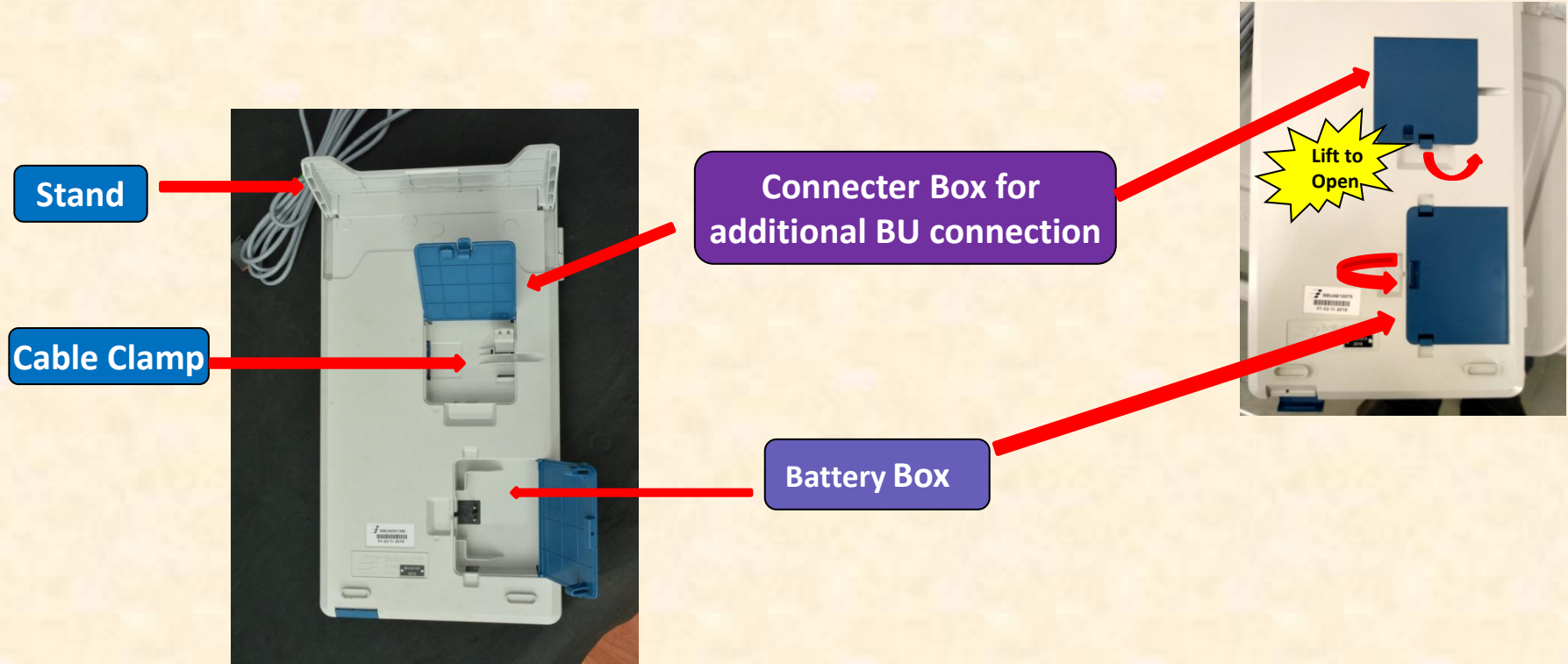
Candidate's Button

Candidate's Lamp

Ballot Paper Screen

Interconnecting Cable

# EVM – Ballot Unit - Details



# EVM – Control Unit – Front View

Power ON Lamp  
(Green)

Busy Lamp (Red)



Display Section

Candidate Set Section

Result Section

Ballot Section

# EVM – Control Unit – Display Section

Power ON Lamp (Green)

Busy Lamp (Red)



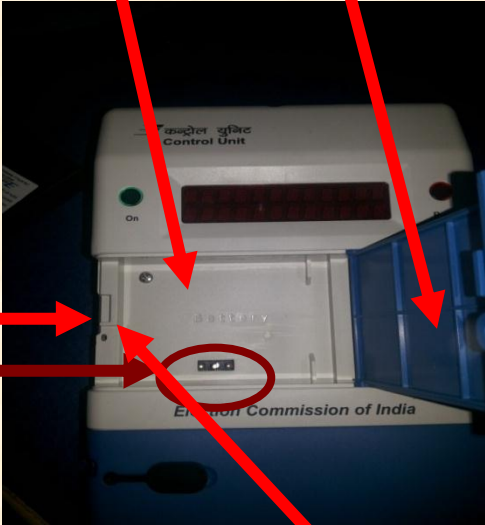
Dual Line Digital Display Panel

# EVM – Control Unit – Candidate Set Section

Power Pack Compartment

Power pack Section Door

Candidate Set Section Door



Latch

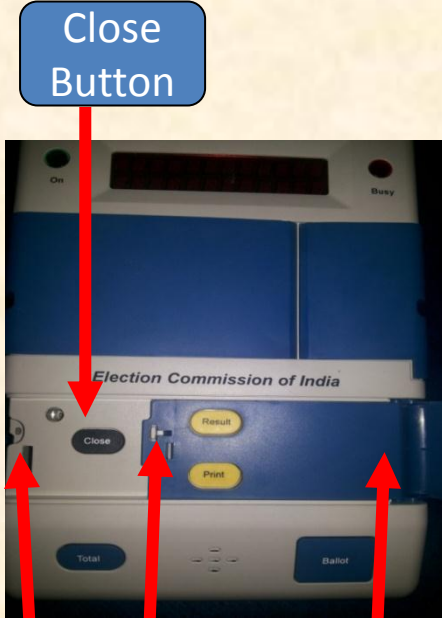
Plug for Power Pack



Candidate Set Button

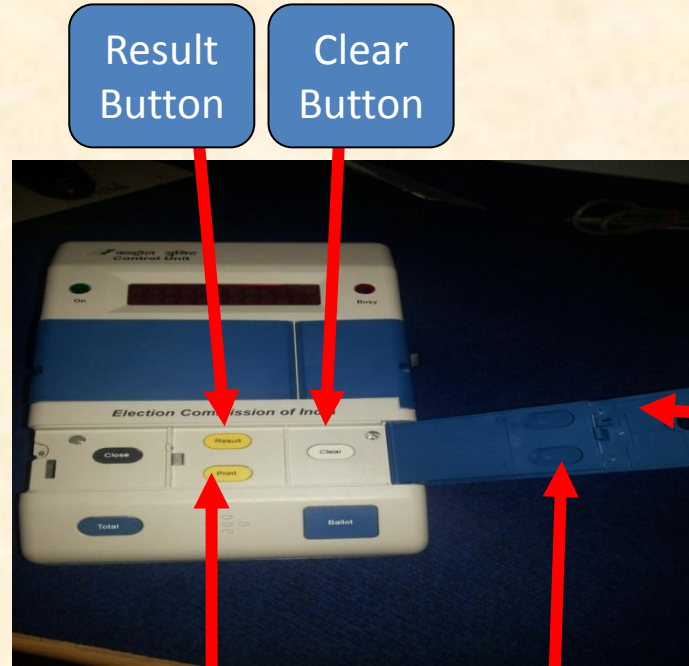
Holes to pass thread for sealing

# EVM – Control Unit – Result Section



Holes to pass thread for sealing

Inner Compartment Door



Result Button

Clear Button

Print Button

Inner Latches

Outer Door

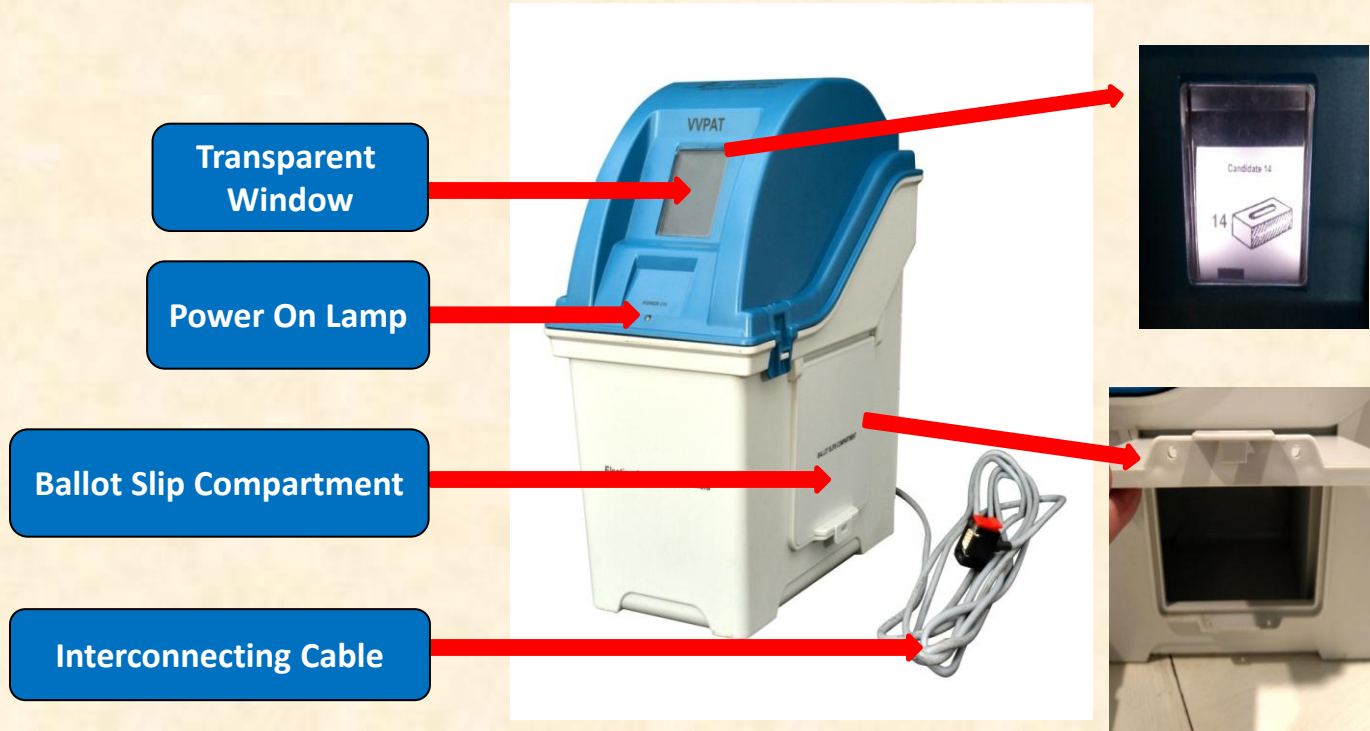
VOTER VERIFIABLE  
PAPER AUDIT TRAIL  
(VVPAT)

# VVPAT

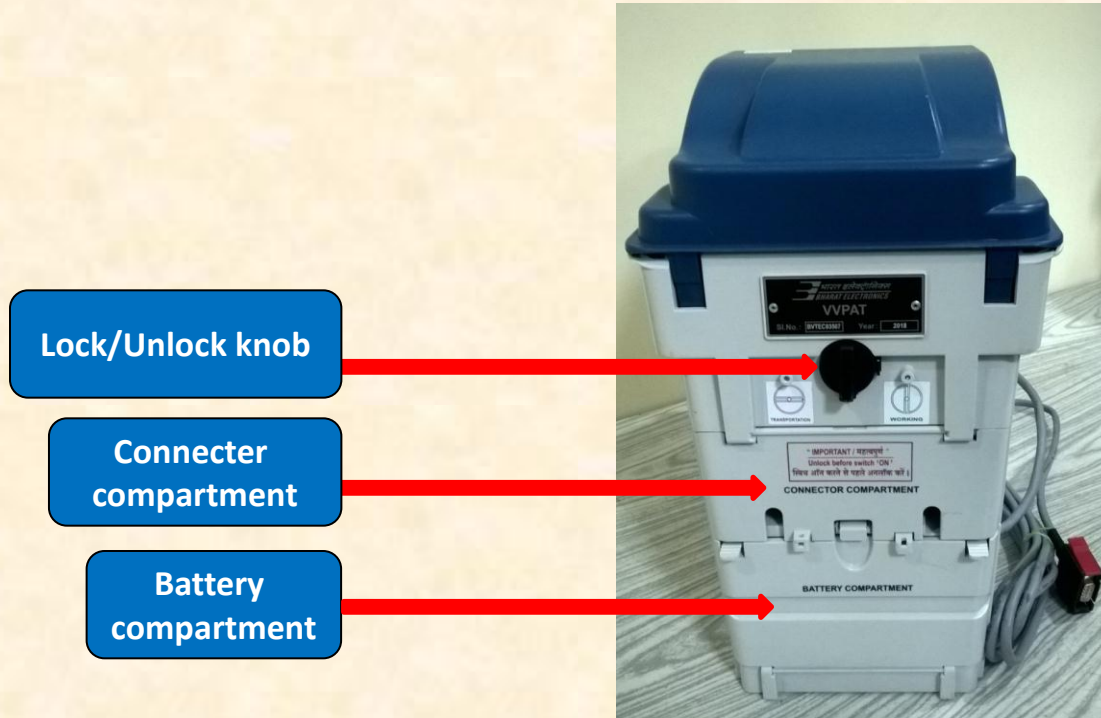


**VVPAT- Allows the voters to verify that their votes are cast as intended.**

# VVPAT – Front View



# VVPAT – Back View



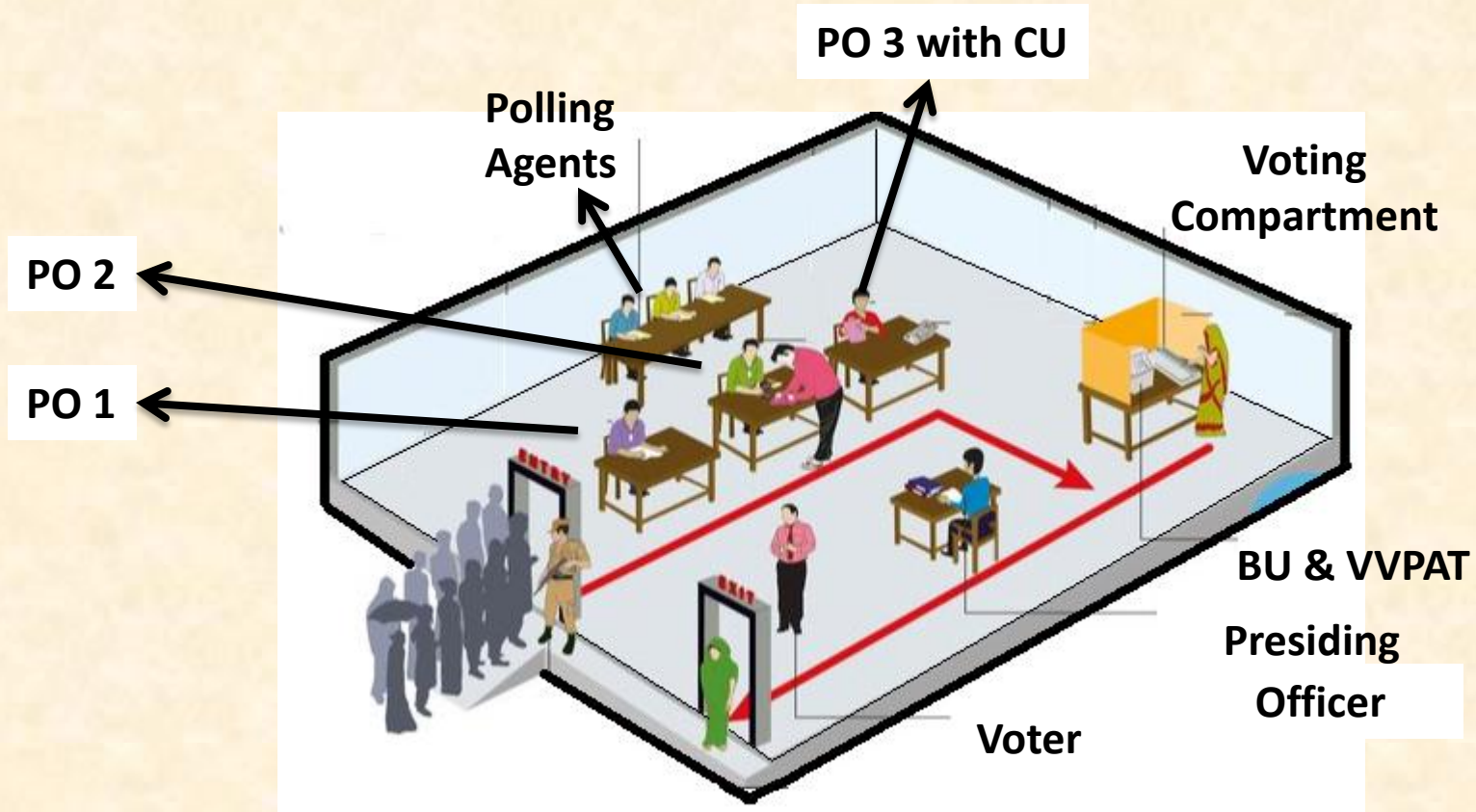
# VVPAT

- Voter Verifiable Paper Audit Trail is an independent system, attached with the Electronic Voting Machines, that allows the voters to verify that their votes are cast as intended.
- When a vote is cast, the elector shall be able to view through the transparent window of the VVPAT, the printed paper slip showing the **serial no**, **name** and the **symbol** of the candidate of his choice.
- The slip is visible through the VVPAT window after which it automatically gets cut and falls in the sealed drop box of the VVPAT.
- Since June 2017, VVPATs are being used in all Elections.

# HISTORY OF VVPAT

- **4<sup>th</sup> October 2010:** An all-party meeting agreed to incorporate VVPAT with EVM.
- **14<sup>th</sup> August 2013:** The Conduct of Elections Rules 1961 amended to use VVPAT.
- **September 2013:** First used in Bye-election for 51-Noksen AC in Nagaland.
- **October 2013:** Hon'ble Supreme Court allowed ECI to introduce the VVPAT system in a phased manner.
- **4<sup>th</sup> March 2017:** Goa became the first State where **100% coverage of VVPATs with EVMs** during Goa Legislative Assembly Election, 2017.
- **12<sup>th</sup> August 2017:** In all party meeting, the Commission committed to ensure 100% coverage of VVPATs in all future elections.
- **April-May 2019:** **100% Deployment of VVPATs** in Lok Sabha Elections 2019.

# POLLING STATION LAYOUT



# EVM-VVPAT MANAGEMENT CYCLE



# Officers Involved in EVM-VVPAT Management



District Election Officer (DEO)



Returning Officer (RO)



Assistant Returning Officer (ARO)



Presiding Officer



PO 1



PO 2



PO 3



**NOTE:** EVM-VVPAT Nodal and Sector Officers are also involved in the overall EVM-VVPAT Management

# District Election Officer

- Custodian of EVMs
- First Level Checking (FLC) of EVMs done at his level by the Manufacturers
- Representatives of Recognized National & State Political Parties participate in the FLC process.
- First Randomization of EVMs done after FLC to allocate EVMs assembly/assembly segment wise.

# Returning/Assistant Returning officer

- Store first randomized EVMs in Strong Rooms
- After finalization of List of contesting Candidates Second randomization of EVMs is done to allocate EVMs Polling Station wise before preparation of EVMs.
- Preparation of EVMs is done in the presence of Candidates/their Agents.
- Prepared EVMs are again stored in Strong Room in the presence of Candidates/their Agents.
- On day of dispersal of polling parties, Strong rooms are reopened and EVMs with election material handed over to polling parties in the presence of Candidates/their agents

# Polling Parties

- After receiving EVMs & election materials, polling parties move to their designated polling station under security
- Before actual poll, Mock-poll is conducted in the polling station in the presence of polling agents of the contesting candidates.
- After Mock-poll, data of mock poll is cleared and Result section is sealed with green paper seal, tags & thread.
- After completion of poll, EVMs are escorted back to strong room.
- Polled EVMs are stored under 24 X 7 security.

## Returning/Assistant Returning Officer (Counting of Votes)

- On counting day Strong Rooms are opened in the presence of Candidates/their Agents and Observers of the ECI.
- Counting of Votes is done in the presence of Candidates/their Agents and Observers of the ECI.
- After counting of votes, the power pack of CU will be removed, and VVPAT slips will be kept in black envelop then EVMs are sealed and stored in Strong Rooms.

# Retention of Polled Data in EVMs

- Period for filing Election Petition(EP) is 45-days from the date of declaration of result;
- Data Retention period is six-months from the date of declaration of result.
- DEOs can clear data from the EVMs not involved in any EP, on completion of six-months.
- Data can be cleared from the EVMs not involved in any EP, after completion of period of filing EP and before completion of retention period with the permission of the Commission for using in any subsequent election.

# Examples of Violation of EVM-VVPAT Protocol & Guidelines



1. EVM Found in Sector Officer's House in Guna AC, Madhya Pradesh in violation of ECI Protocol. Enquiry was ordered by ECI



2. Tamil Nadu Elections 2021- A duo carrying two EVMs and a VVPAT machine on a two-wheeler were caught by motorists and passers-by in Velachery after polling ended. Action was initiated against the concerned for not following ECI guidelines



### **3. EC Suspends 4 Poll Officials in Assam After EVM Found in MLA's Car, Orders Repolling in Booth**

The presiding officer of the polling station at Indira MV School at Ratabari Constituency and other members of the polling party were heading to the strong room when their car broke down. They failed to establish communication with the election officials and took a lift from a passing car. However, the vehicle belonged to the Patharkandi MLA, who is a candidate in the assembly election. Later, enquiry was ordered and officials were suspended for not following the ECI guidelines and protocol regarding shifting the Polled EVMs & VVPATs

# Examples of Violation of Protocol

4. During the UP Elections held in 2022, in Varanasi, the machines were transported in an open lorry without following the ECI guidelines. EC has ordered action against Varanasi ADM for violating the rules.
5. In Bareilly, ballot boxes and other election items were found inside a garbage collection bin of the local municipality in the Baheri area. The officials were replaced on the direction of the Election Commission. The Additional Election Officer VK Singh was removed from the election process
6. In Sonbhadra district, ballot slips were recovered from a box inside the vehicle of the additional district magistrate, who was suspended from duty
7. CCTVs outside the EVM strong room in MP didn't work for over an hour as electricity supply was cut off and no alternate power supply was available. Candidates and Agents who had camped there took objection and the issue was resolved after ECI intervened.
8. In Sagar constituency of MP there were complaints over the transport of EVMs in four vehicles of which one had no number plate. Alternate vehicle as per ECI guidelines was arranged and EVMs were transported
9. In Pandhana constituency, six officers were served show-cause notices after reports arose of polling staff failing to deposit EVMs on time and keeping them in a police station.
10. EVM was found abandoned on a highway off Shahbad areas in Kishnaganj assembly constituency, after it fell off the vehicle transporting the set. It was being transported in an open vehicle without following the ECI guidelines.

# 1. TECHNICAL SECURITY

## SECURED DESIGN FEATURES



EVMs are designed to be 100% secure.

1. ECI EVMs are standalone machines and cannot be connected to any other device either through wire or wirelessly. A CU can be connected only to a BU and VVPAT.
2. EVM has No radio frequency transmission capability, ruling out wireless connection through wifi, bluetooth, etc.
3. The microcontroller chip on which the software is fused is one time programmable ruling out any possibility of re-programming. The transmission of signals from BU to CU is encrypted dynamically. This means every time even same button is pressed in BU the signal is transmitted with a different encryption formula, ruling out any possibility of reverse engineering of software code.
4. There is also another feature of date and time stamping of every key pressed. This helps in giving a complete audit of keys pressed.

**Standalone  
Machine**

**No Radio  
Frequency  
transmission or  
reception  
possible:  
No wireless  
communication  
possible**

**One Time  
Programma  
ble (OTP)  
chip:**

**Software cannot  
be modified**

**Dynamic  
Coding  
of Key  
Press**

**Date and Time  
Stamping of  
every key press**

## 2. SECURE DEVELOPMENT & MANUFACTURING



- 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.
- In-house SOFTWARE Developed. Fully vetted by TEC. Never sub-contracted.
- Secure Manufacturing: 3-level Physical/Process access Control, Regular frisking, Outside e-gadgets prohibited, CCTV Coverage, Access Data and Process Data logging, Alarm and Alert generation.
- Third Party Testing by Standardisation Testing and Quality Certification (STQC) as per Standards & Quality Process set by TEC. Software is also tested & checked by STQC for authentication.

# ADMINISTRATIVE SAFEGUARDS

SECURE HANDLING & MANAGEMENT OF  
EVMS/VVPATs

# 2. ADMINISTRATIVE SAFEGUARDS

## I. STAKEHOLDER PARTICIPATION

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



Opening & Sealing of EVM Warehouses & Strong-rooms

1

2

3



5

4

First Level Check (FLC) & Candidate Setting

List of EVMs after 1<sup>st</sup> & 2<sup>nd</sup> randomization shared

Sign on Paper Seals on EVMs after all processes



Participation During FLC



## II. 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/VVPATs 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/VVPATs.

# Sub-topics

1. **Storage**
2. **FLC**
3. **Training & Awareness**
4. **Randomizations 1<sup>st</sup> & 2<sup>nd</sup>**
5. **Commissioning/Preparation**
6. **Dispersal Day**
7. **Poll Day**
8. **Example of Critical Mistakes**
9. **EMS**



# 1. Storage

- A. Non-election Period:** After Election Petition till start of FLC
- B. Election Period:** FLC to Election Petition Period
- C. Petition Period:** After Counting of Votes to confirmation of Election Petition Period

# 1. Storage

## A. Non-election Period:

- Storage Place: Treasury/District HQs/Tehsil HQs
- Physical Aspects of ware house:
  - ✓ Only one entry/Exit point
  - ✓ Double lock system (2 Locks)
  - ✓ Installation of Main Switch outside Ware house
  - ✓ No other material to be stored
- Custody of keys:
  - ✓ All keys of Lock-1 with DEO and all keys of Lock-2 with Dy.DEO (District HQs)
  - ✓ All keys of Lock-1 with SDM and all keys of Lock-2 with Tehsildar (Outside District HQs)
  - ✓ Deposition of keys in Treasury
  - ✓ Handling of keys to be a part of CTC (Certificate of Transfer Charge)

# 1. Storage

## A. Non-election Period:

### ➤ Security:

- ✓ 1/2 Section Armed Security
- ✓ CCTV/Fire Alarm
- ✓ Fire extinguisher both inside and outside

### ➤ Inspection by DEO:

- ✓ Monthly
- ✓ Quarterly (April, July, October & January)

# 1. Storage

## **B. Election Period (Stored in strong Room):**

- i. FLC to 1<sup>st</sup> Randomization
- ii. After 1<sup>st</sup> Randomization to dispersal
- iii. Poll Day to before Counting Day
- iv. Counting Day

# 1. Storage

## B. Election Period:

- i. FLC to 1<sup>st</sup> Randomization
  - Custody of DEO
  - Strong Room with Double Lock System
  - All keys of Lock-1 with DEO and all keys of Lock-2 with Dy.DEO
  - One Section Armed Security
  - CCTV
  - Open for taking out **Awareness/Training units (10%)** and after **1<sup>st</sup> Randomization** in presence of political parties (National & State Recognised) under videography

# 1. Storage

## B. Election Period:

### ii. After 1<sup>st</sup> Randomization to dispersal

- Custody of RO
- Double Lock System
- All keys of Lock-1 with RO and all keys of Lock-2 with ARO
- 1 Section Armed Security
- CCTV
- Open only after **2<sup>nd</sup> Randomization** for **commissioning/preparation** and on **dispersal day** in presence of candidates/ their agents under videography

# 1. Storage

## B. Election Period:

### iii. Poll Day to before Counting Day

- Custody of RO
- Double Lock System
- All keys of Lock-1 with RO and all keys of Lock-2 with ARO
- Electricity disconnected after sealing
- Fire-extinguishers inside & outside strong room
- One Platoon CAPF Armed Security at inner perimeter & State Armed Police in outer perimeter (2 tier Security)
- CCTV monitoring
- No one allow to enter inner tier
- Daily two visit of RO/DEO
- Candidates/their agents are allowed to watch security from outside or through CCTV

# 1. Storage

## B. Election Period:

### iv. Counting Day

- One Platoon Armed Security
- Three tier Security on Counting Day: Inner- CPAF, Middle-SAP, Outer-DAP
- CCTV coverage for movement of CUs, VVPATs etc
- Opening/Closing of Strong Room in presence of Observer, candidates/ their agents under videography

# 1. Storage

## C. Petition Period:

- ✓ Custody of DEO
- ✓ One Section of Security
- ✓ CCTV

# STORAGE & MOVEMENT OF EVMs & VVPATs AND OPENING OF EVM-WAREHOUSE

Pre-Poll Storage: After first Randomization of EVMs & VVPATs till dispersal of polling parties

- After first randomization of EVMs, hand over EVMs and VVPATs to the RO/ARO concerned, as the case may be, under proper armed police escort.
- Guidelines to be followed:
- Store EVMs/VVPATs in a strong room in the presence of representatives of National/State Level Political Parties under Videography.
- Keep Training and awareness EVMs & VVPATs in a separate strong room.

## STORAGE & MOVEMENT OF EVMs & VVPATs AND OPENING OF EVM-WAREHOUSE

- 1 Section Security and CCTV coverage 24X7
- Store EVMs and VVPATs in separate strong rooms Assembly Constituency (AC)/Assembly Segment (AS) wise.
- Open the Strong Room at the time of commissioning of EVMs & VVPATs.
- Log Book has to be maintained.
- After commissioning, keep EVMs & VVPATs again in the strong room and open on the day of dispersal in the presence of **candidates** or their representatives.

# STORAGE OF EVMs AFTER POLL

- 1) **Category 'A' - Polled EVMs & VVPATs**
- 2) **Category 'B' – Non-functional Polled EVMs & VVPATs**
- 3) **Category 'C' - Non-functional Un-polled EVMs & VVPATs**
- 4) **Category 'D' - Unused Reserve EVMs & VVPATs**

## **Three categories of strong rooms:**

1. **Polled EVM Strong Room (Store category 'A' & 'B')** (Collected at Collection Centre)
2. **Repair Strong Room (Store category 'C'), not in the vicinity of polled EVM strong room** (Collected at separate Collection Centre)
3. **Reserve Strong Room (Store category 'D'), not in the vicinity of polled EVM strong room** (Collected at separate Collection Centre)

# 2. First Level Checking

## **FLC to be done only by authorised engineers of BEL/ECIL**

- Cleaning of machine- Removal of stickers, tags, ballot papers, poll data etc.
- Visual Inspection – For switches, cables, latches, connectors etc.
- **Pre FLC of each CU, BU and VVPAT will be done with Pre FLCU**
- Plastic cabinet opening for certifying components
- Full functionality checks: 6 votes to each candidate button & verify the count/paper slips for each (CU+BU) & VVPAT.
- Load Testing- Testing of 1% FLC OK EVMs & VVPAT by connecting 4 BUs, 1 votes to each candidate button & verify the count/paper slips.
- Conduct of Mock Poll: 5% Randomly Selected (EVMs with VVPATs)- 1200 votes in 1%, 1000 votes in 2% and 500 votes in 2% and count/paper slip verification
- Political party representative random pick for mock poll

**Sealing of CU Cabinet with Pink Paper Seal - Copy to political parties & to candidates after last date of withdrawal). To keep a copy at the time of commissioning.**

# 2. First Level Checking

## Supervision of FLC

- Under close supervision of DEO
- FLC Supervisor appointed by DEO
- CEO/DEO to monitor through web cast & report to ECI
- Quality check of FLC by Nodal Officer
- FLC completion certificate to ECI

## 2. First Level Checking

- **Disposal of VVPAT slips generated during FLC on daily basis**
- **Marking on FLC Status on EMS**
  - DEO to provide 2 mobiles
  - FLC OK to be scanned by election official
  - FLC Rejected to be scanned by BEL/ECIL engineer
- **Defective Units**
  - No electronic repair of EVMs/VVPATs to be done during FLC
  - Defective units to be send back to factory within 7 days

### 3. Training & Awareness

- Take out max 10% (of polling stations) FLC OK machines for training purpose in EMS before Randomization (Yellow sticker/List to Pol. Parities etc)
- Deputation of trained authorized officer by DEO for training and awareness purpose
- **Demonstration Centers at DEO/SDM/RO offices**
- **Mobile demonstration vans**
- **Digital Outreach (dovetailed with SVEEP plan)**

# 3. Training & Awareness

- No demonstration after announcement of election
- Awareness/demonstration about voting using VVPAT with EVM with dummy symbols & maintain daily register of votes
- Store securely in Govt. Building at the end of the day & maintain proper log book
- Daily destruction of paper slips using paper shredder
- Hands-on Training of Master trainers & to ROs/ AROs/ SOs/ PrOs/ POs etc.
- Certificate by DEO to CEO on P-3 day about compliance

# 4. RANDOMIZATION

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

## 1<sup>st</sup> Randomization

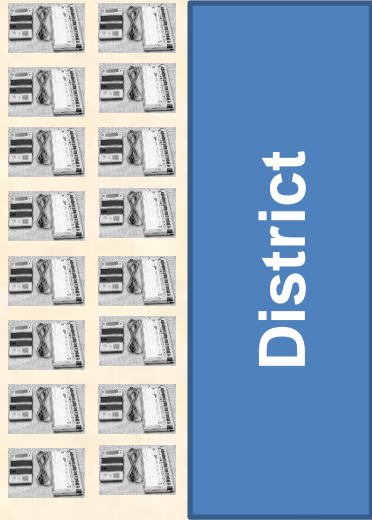
- Done after the Announcement of Election by the DEO.
- In presence of Representative of political parties list shared.

## 2<sup>nd</sup> Randomization

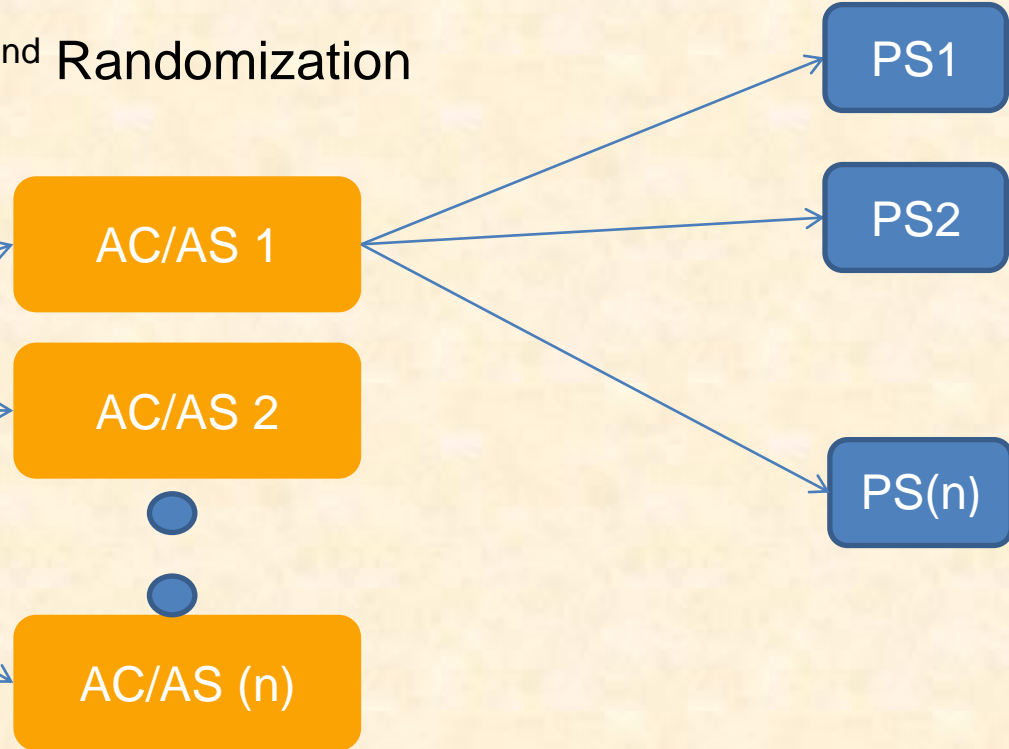
- Done just before 'candidate setting'.
- To allocate EVMs available in an AC/AS to polling stations.
- In presence of candidates/election agents and list shared.

# 4. RANDOMIZATION

1<sup>st</sup> Randomization



2<sup>nd</sup> Randomization



# 4.RANDOMIZATION

## THE FOUNDATION OF EVM SECURITY

- 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.

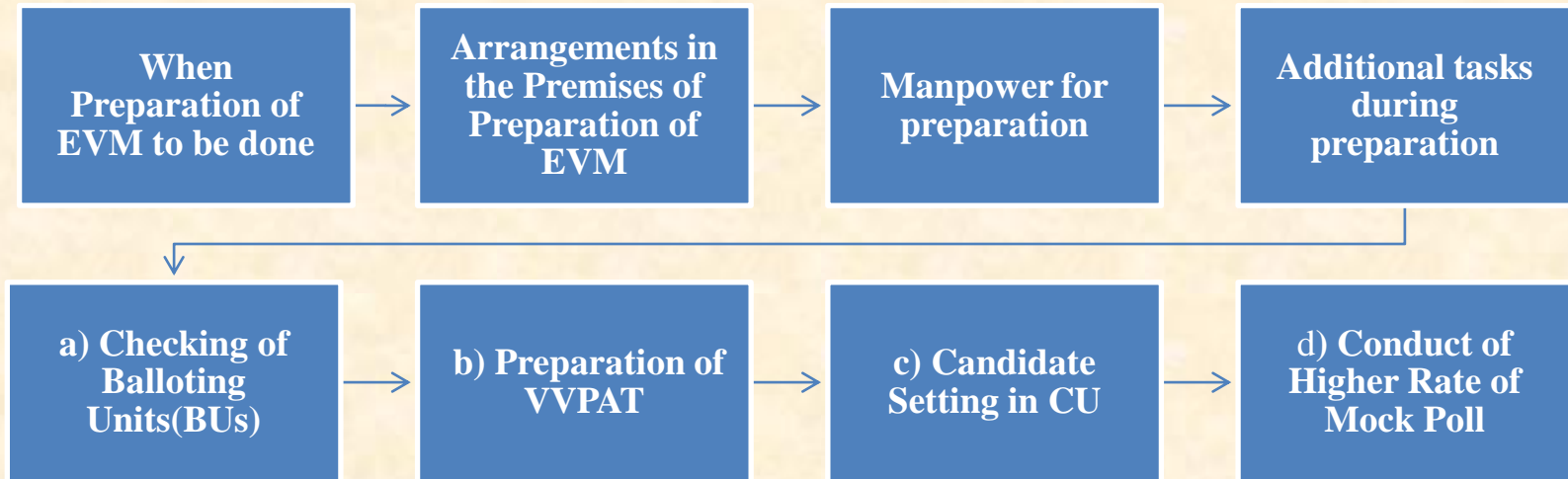
# 5. Commissioning/Preparation

- ✓ In presence of candidates/their representatives
- ✓ Under Videography
- ✓ TV displays for each SLU
- ✓ **Work to be Done :**
  - **VVPAT:** Symbol Loading/Power Pack/Paper Roll/Sealing of Paper Roll Compartment
  - **Ballot Unit:** Ballot Paper/ Thumb-wheel setting/ Masking/ Sealing with Pink Paper Seal and Address Tags
  - **Control Unit:** Candidate Setting/sealing of Candidate Set and Power Pack Sections with Address Tags

# 5. Commissioning/Preparation

- ✓ Mock poll with one vote to each candidate with CU, BU and VVPAT
- ✓ High rate mock poll with 1000 votes in randomly selected 5% EVMs and VVPATs by the representative of political parties/candidates and verification.
- ✓ Replacement of particular BU, CU and VVPAT in case of non-functioning of any of these units
- ✓ Shredding of VVPAT slips during commissioning on daily basis in presence of RO/ARO
- ✓ Pasting of 'Reserve' stickers on reserve units

# Process flow in the commissioning/preparation



# Commissioning of EVMs/VVPATs to be done after the last date of withdrawal of Candidature

1

RO draws schedule for Commissioning of EVMs/VVPATs



2

Written intimation to all the candidates about the schedule for their presence to oversee the commissioning and actively participate in the mock poll process and take their signatures on the register.



3

In case of Parliamentary Elections, ARO will supervise the preparation of EVMs for assembly segment.



# Arrangements in the premises for commissioning

- Large Preparation hall to accommodate EVMs/VVPATs, officers nominated by the DEO, engineers of concerned manufacturers and representatives of candidates. The hall for commissioning should near to the strong room.
- Log Book has to be maintained.
- Register has to maintained to keep the record of officials moving in and out of the hall
- A counter has to setup for collecting mobile phones/other valuable and electronic devices.
- Fully sanitized to ensure that the hall is free from any electronic components or devices.
- Single entry and exit point to hall with full security by armed police forces round the clock with 24X7 CCTV coverage.

# Arrangements in the premises for commissioning

- Permission for Entry to hall through Door frame metal detector (DFMD) on production of Identity card of authorized official/pass issued by DEO.
- Proper frisking at every entry.
- Neither allow anyone to carry any electronic device inside the hall nor anybody to take out anything outside the Preparation Hall.
- Commissioning of EVMs and VVPATs pertaining to AS of PC falling in RO headquarters may be done at **ARO** level under direct supervision of **RO** level, in the presence of candidates/ their representatives. Further, the commissioning of EVMs and VVPATs of remaining AS may be done by the respective **ARO** in the presence of candidates/their representatives.

# Manpower for preparation

1. Only the authorized engineers of BEL/ECIL associate for the commissioning of EVMs/ VVPATs.
2. BEL/ECIL to share the list of engineers with DEO for carrying out task during the commissioning of EVMs/VVPATs in a district along with their identity card numbers etc.
3. Allow authorized engineers/technical staff of BEL and ECIL only to enter the preparation hall.
4. Separate team for each EVM in which 1000 votes are cast during mock poll.

# Checking of Balloting Units (BUs)

Opening of outer cover of BUs by BEL/ECIL Engineers to examine and certify as in **Annexure-17** that all components of BUs are original and show to the candidates/their representatives. Separately issue detailed instructions for checking of BU by BEL and ECIL for their respective machines and the list of equipments to carry within the preparation hall.

## 1. Sealing of ballot paper screen of BU with thread and address tag



After firm fixation of the ballot paper followed by Ballot Paper Screen on the upper side of top cover, seal the screen by passing the thread through two holes using address tag showing the particulars of election with seal of the RO.

Be ensure to put a cello tape on the address tag inside the acrylic screen otherwise address tag will spill on to the Ballot Buttons.

## 2. Sealing of plastic cabinet of BU with thread and address tag



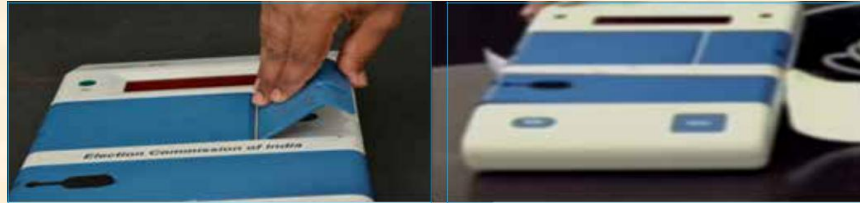
After unmasking candidate buttons, seal the upper cover of the BU by thread passed through holes on the top and bottom end at right side using address tags showing the particulars of the election with the seal of the RO.

### 3. Sealing of plastic cabinet of BU with pink paper seal



Seal BU with special “**pink paper seal**” affixed on upper & lower portion of BU so that no candidate button or name of symbol is hidden.

### 4. Sealing of Candidate Set Section and Battery Section of CU with thread & address tag



After Candidate set, seal cover of the Candidate Set Section of CU by passing a thread through hole provided on the both sides using address tags showing the particulars of the election with the seal of the RO.

## PREPARATION OF VVPAT



### Installation of paper roll

### Inserting of power pack

Connect a new battery (power pack) to the VVPAT unit and shut the door of the battery compartment. Do not seal the battery compartment as the power pack can be replaced in case of low battery. Install a fresh paper roll in the printer unit as per the procedure mentioned in the user manual (**Annexure-21**). Load allotted Serial numbers, names of candidates and symbols in VVPAT with the help of engineers using Symbol Loading Unit (SLU). RO/ARO to check the test printout with the ballot paper in BU & sign and certify the same.

# Candidate Setting in Control Units:

- 1) Install new Power Pack in CU.
- 2) Connect cable of VVPAT with CU and cable of BU with VVPAT.
- 3) Unlock Paper Roll knob of VVPAT (Rotate to “Working Position)
- 4) Switch ON the CU.
- 5) Press Candidate Set button of CU. Display Panel of CU shows Set Candidate.
- 6) Press last candidate button (NOTA button) of BU to set candidate in CU.
- 7) Mock Poll with one vote to each candidate to check that the VVPAT is printing the paper slips accurately.
- 8) Switch off the CU.
- 9) Seal the latches of paper roll compartment of VVPAT and Battery & Candidate Set compartments of CU using thread seals and address tags.
- 10) Allow the candidates/their agents to affix their signatures with party abbreviations on Address Tags.

# EVM – Candidates Setting

When Candidate Set button is pressed, if the digit display panel shows the words **INVALID** , It signifies that the data relating to some previous operation is in the EVM.

Press the **Close** button and wait till **POLL CLOSED** is displayed

Thereafter, press **Result** button and wait till **END** is displayed

Thereafter, press **Clear** button and wait till **END** is displayed

Then press **Cand. set** button and **SET CANDIDATE** flashes with Beep

Now press the last candidate's button – NOTA on the Ballot Unit

# SEALING OF PAPER ROLL COMPARTMENT AT THE TIME OF PREPARATION OF VVPAT



After installation of paper roll in the paper roll compartment of VVPAT, seal the latches of Paper Roll Compartment by passing a thread through holes provided on the latches using Address Tag showing the particulars of the election with the seal of the RO.

(Ensure Switching OFF of Control Unit before sealing of paper roll compartment)

**NOTE :** *All Seals used at the time of commissioning of EVMs & VVPATs shall be signed by the Returning officers and candidates / their agents.*

## REPLACEMENT PROTOCOL:

All 'ERROR' messages for BU, CU & VVPAT will be displayed on CU only. Please read message and act accordingly. In case BU or CU or VVPAT is not functioning, replace the respective unit only with reserve one.

### DON'T DO

1. Don't install serial number, name and symbol of candidates in VVPAT without verifying with ballot paper.
2. Don't set candidates in CU without connecting VVPAT.
3. Don't preserve VVPAT slips printed during Commissioning. Shred them on daily basis.
4. After completing the Mock of 1000 votes on 5% randomly selected BUs, CUs and VVPATs please ensure to put new power packs in CUs and VVPATs and paper roll of VVPATs
5. Don't keep VVPAT knob in Working mode (Vertical position) after commissioning.

# Conduct of higher rate mock poll

1. Checking of VVPATs- In 100% VVPATs, one vote to each candidate shall be given to check that the VVPATs is printing the paper accurately.
2. Mock poll of 1000 votes on 5% randomly selected EVMs as well as VVPATs.
3. Tally the electronic result with paper count. Allow Candidates/their representatives to pick machines randomly for this purpose.
4. Allow representatives of candidates to do the mock poll themselves and take their signatures in a register in **Annexure– 22** as token of having done mock poll themselves.
5. Ensure that the pink paper seal of the CU applied at the time of FLC is not damaged in any manner during commissioning.

# **Safe custody of Symbol Loading Unit(SLU):**

- BEL & ECIL will provide the list of SLUs allocated to the team for each AC/AS in writing to the DEO concerned.
- SLUs brought by BEL/ECIL engineers shall be in custody of RO from arrival in constituency to completion of commissioning.
- After completion of commissioning of EVMs and VVPATs, BEL/ECIL Supervisors will hand over all the SLUs to the concerned DEO.
- DEO will keep the SLUs received from the BEL/ECIL Supervisors in their safe custody and return the same to them or engineers authorized by the BEL/ECIL on the next day after poll i.e. P+1 Day to enable them to move to the next AC/AS for next phase.
- DEO will ensure that no engineer of BEL/ ECIL or any other person carry the SLU on poll day in the field.

## **Supervision of the preparation:**

RO or one of the AROs will supervise the preparation of EVMs/VVPATs under videography.

# Introduction of Braille Signage Features in EVM:

Make Additional Arrangements to facilitate visually impaired electors to exercise their franchise.

- **Do not paste any sticker** on Braille on the right of the blue button (voting button) on the BU because it has embossed serial numbers of the candidates in Braille signage.
- After finalization of list of the contesting candidates, immediately send the list of contesting candidates to the Devnar Foundation for Blind/National Blind Association or to any other source available for **preparation of Dummy Ballot Sheets**

## Preparation of Dummy Ballot Sheet:

Give serial Numbers in each Dummy Ballot Sheet **from 01 to 16** i.e. If number of contesting candidates are **19** including NOTA, number the serial number for the candidates in first Dummy Ballot Sheet as **01 to 16** as mentioned on the Ballot Paper of first BU. For contesting candidates at serial **number 17-19 of BU-2**, start the serial numbers again from **01** on 2nd Dummy Ballot Sheet.

If more than 1 BU is used, **print BU-01** in Braille on the **TOP MIDDLE PART** of first Dummy Ballot Sheet and **BU-02** in second dummy ballot sheet and so on.

Similarly, **print Braille stickers 'BU-01', 'BU-02'** and so on and affix on the corresponding BU on the **TOP MIDDLE PART**.

## 6. Dispersal Day

- Opening of strong room & dispersal in presence of candidates/their representatives
- Checking of seals, buttons, switch, ballot paper, power packs etc to ensure correctness and pertaining to particular PS
- Switch on the CU only to check the battery status and then switch it off
- Check that VVPAT knob is in horizontal position
- Not to connect CU, BU and VVPAT
- Replacement of particular BU, CU and VVPAT in case of non defect or physical damage

# Poll Day

- ❑ Start of Mock Poll before 90 minutes in presence of atleast two polling agents.
- ❑ If No/only one polling agent present, wait for 15 minutes.
- ❑ Atleast 50 votes and 1 vote to each candidate/NOTA
- ❑ Sealing of CU and VVPAT after mock poll
- ❑ Pressing of CLOSE BUTTON after completion of Poll
- ❑ Sealing of BU/CU/VVPAT in respective carrying case after poll
- ❑ Replacement Protocol
- **Respective Unit during Mock Poll**
- **Entire Set (BU+CU+VVPAT) in case of Non-functional of BU or CU and VVPAT only in case of Non-functional of VVPAT**
- **Handling of critical situations-** no beep sound, no paper cutting, 49MA etc.

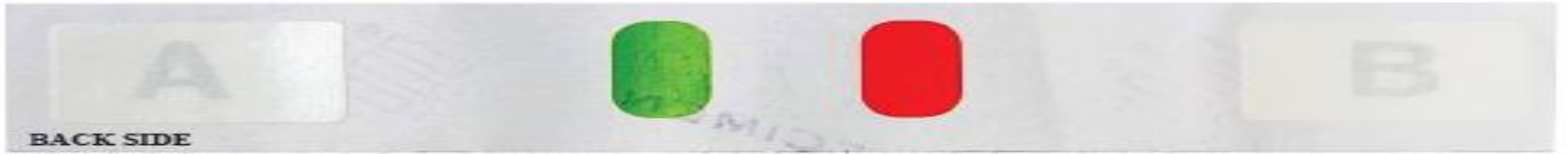
# Newly designed Pink Paper Seals and Green Paper Seals for sealing of EVMs



## PINK PAPER SEAL (TWO PARTS)



FRONT SIDE (GREEN)

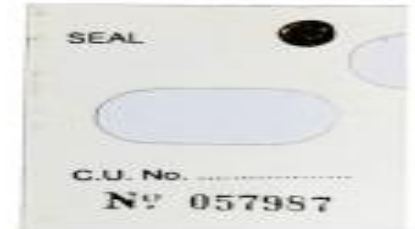


BACK SIDE

## GREEN PAPER SEAL

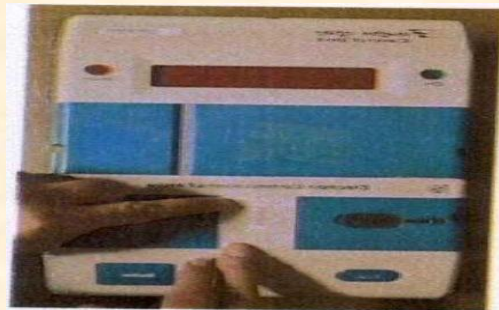
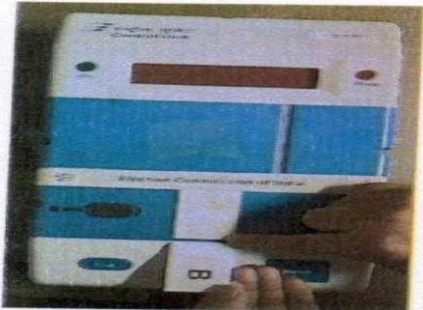
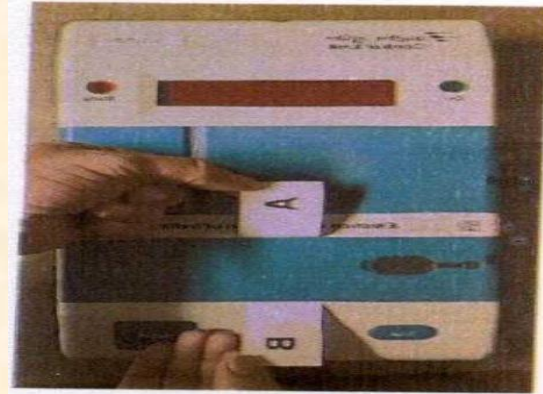
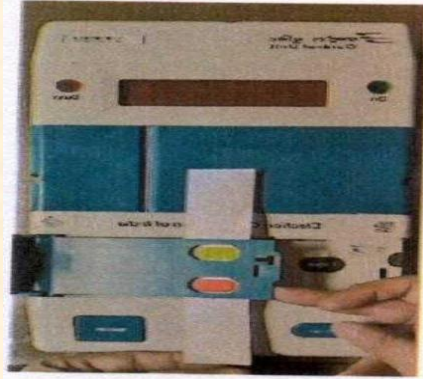


COMMON ADDRESS TAG



SPECIAL TAG

# Sealing of Result Section of the Control Unit with Green Paper Seal after mock poll



# Sealing of black envelope containing mock poll stamped VVPAT slips with Pink Paper Seal



# Poll Day Report from PrO on EVMs & VVPATs

- A. Part – I Mock Poll Certificate \*
- B. Part – II Replacement of Power Pack of the Control Unit
- C. Part – III Pressing of Close Button after Completion of Poll Certificate \*
- D. Part –IV EVM/VVPAT Replacement Report (if Replaced During Mock Poll)
- E. Part – V EVM/VVPAT Replacement Report (if Replaced During Actual Poll)

**PRESIDING OFFICER'S REPORT**

**PART-I: MOCK POLL CERTIFICATE**

Name of election:..... (to be pre-printed)  
 No. and Name of AC/AS: ..... (to be pre-printed)  
 No. and Name of PC: ..... (to be pre-printed)  
 Polling Station No:.....

(a) Conduct of mock poll and verification of mock poll data

S. No.	Name of the Candidate (Name of Candidates including NOTA to be pre-printed)	Number of votes cast during mock poll	Number of votes displayed in CU on checking the result	Number of VVPAT printed Paper slips against candidates	Result displayed in CU & Printed Paper Slips count tallied with each other (YES/NO)	Signature of polling agents with party abbreviation/In dependent

**PRESIDING OFFICER'S REPORT**

**PART-III: PRESSING OF CLOSE BUTTON AFTER COMPLETION OF POLL**

Name of the Election : ..... (to be pre-printed)  
 No. & Name of the AC/AS : ..... (to be pre-printed)  
 No. & Name of the PC : ..... (to be pre-printed)  
 Date of Poll : ..... (to be pre-printed)  
 Number & Name of Polling Station : .....

It is certified that I have pressed the "Close Button" of the Control Unit at the end of poll in the presence of the following:

S. No.	Name & Designation of the Polling Officer	Signature

# REPLACEMENT OF EVM-VVPAT DURING MOCK POLL

In case BU or CU or VVPAT not functioning, replace the respective unit only

## REPLACEMENT OF EVM-VVPAT DURING **ACTUAL POLL**

- In case BU or CU not functioning, replace the whole set of BU, CU and VVPAT. In case of replacement of whole set, mock poll shall again be conducted by casting of 01 vote to each contesting candidate including NOTA. Follow mock poll process.
- In case CU shows Error "Replace VVPAT", switch OFF the CU and replace VVPAT. No MOCK POLL is required.
- In case CU shows Error "Replace Power Pack of VVPAT", switch OFF the CU and replace only Power Pack of VVPAT. No MOCK POLL is required.
- In case CU shows Error "Replace Power Pack of CU", switch OFF the CU and replace only Power Pack of CU and seal the power pack compartment of CU. No MOCK POLL is required.

# After poll

- Press CLOSE button of CU after poll
- Press TOTAL button of CU to note total polled votes in CU and also Poll Start Time (PST) and Poll End Time (PET).
- Switch OFF the CU before disconnecting the cable of BU from VVPAT and VVPAT cable from CU
- Remove Power Pack (Battery) from VVPAT.
- Keep BU, CU and VVPAT in their respective carrying cases and seal each carrying case with Address Tag

# DON'T DO

## MOCK POLL

- Don't start mock poll, if one or no election agent is present. WAIT FOR 15 MINUTES.
- Don't stop mock poll without casting at least 50 votes.
- Don't start actual poll without clearing mock poll data from CU and without removing mock VVPAT slips from the drop box of VVPAT.
- Don't keep VVPAT mock slips unstamped.
- Don't Switch OFF and Switch ON CU while mock poll is going on. Don't disconnect and connect cables while mock poll is going on.

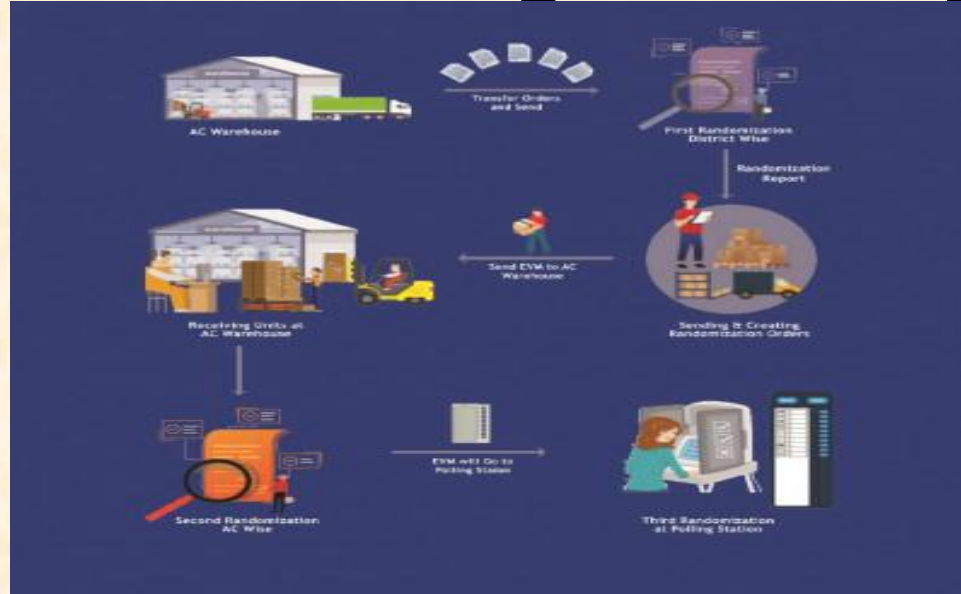
## ACTUAL POLL

- Don't Switch OFF and Switch ON CU while actual poll is going on.
- Don't disconnect and connect cables while actual poll is going on.
- Don't conduct mock poll when only VVPAT or Power Pack of CU/VVPAT/BU is replaced.

## CLOSE OF POLL

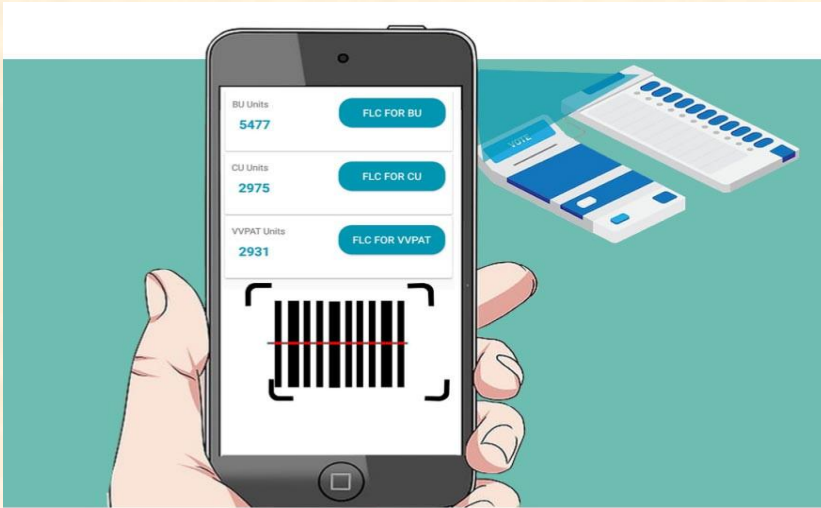
- Don't press CLOSE button of CU before notified poll close time or completion of poll.
- Don't disconnect cables without Switching OFF the CU.
- Don't leave Power Pack of VVPAT in VVPAT after completion of poll.
- Don't leave carrying cases without sealing and obtaining signature of Polling Agents after poll.
- Don't use any other vehicle other than assigned vehicle for depositing polling materials at collection centre.

# EVM Management System (EMS)



EVM Management System is designed to manage inventory of EVM units. EMS is a centralized online tracking system, which keep track of movement and placement of each machine from its production to it destruction.

# EMS Mobile App



EMS Mobile App is a core application of EMS, which allows users to scan the permanently encoded barcode of each machine (EVM/VVPAT) while they are in movement. It is used to scan the barcode on EVM/VVPAT at every entry and exit point before movement of these units.

This is a vital application which ensures that the EVM machine records are kept up to date, each machine is trackable, any replacement, training and repair are handled securely.

# Process Flow

## 1. Order Generation

1. Manufacturer order
2. Scan process before sending units
3. Scan process before receiving units
4. Order receiving at District Warehouse

## 2. First Level Check

1. FLC announce by Manufacturer/DEO
2. FLC carries out through temp user
3. FLC ok units will be transferred to Strong room
4. Not ok units will be transferred to the Repair room

## 3. Randomization

## 4. Scheduling of the Randomization

## 5. First Randomization

## 6. Second Randomization

## 7. Supplementary Randomization

## 8. Replacement

## 9. Replacement of the units during the poll at different levels

## 10. Undo of the replacement, if required

## 11. Election Petition

## 12. Mark EP

## 13. Unmark EP



**Mustering Day:** On mustering day, machines can be found defective while dispersing. Those machines must be replaced and it should be updated in EMS

**Poll Day:** Machines can be found defective while conducting Mock Poll and Actual Poll. Those machines must be replaced and it should be updated in EMS.

The screenshot displays the EVM Mgt System interface. The top navigation bar includes the logo 'VM EVM Mgt System', a 'User Manuals' button, and a user profile icon. The left sidebar lists menu items: 'JEO AMANAGARAM', 'USER & ENTITY', 'SERVICES', 'RANDOMIZATION', 'REPORT', 'PC USER SERVICES', and 'MISCELLANEOUS'. The main content area is titled 'AC WISE REPLACEMENT REPORT' and contains a form with the following fields:

- ELECTION TYPE: \***: A dropdown menu with the option '- Select -'.
- REPORT TYPE: \***: A dropdown menu with the option '- Select -'.
- REPLACEMENT TYPE: \***: A dropdown menu with the option '- Select -'.
- STATE: \***: A dropdown menu with the option 'Karnataka'.
- DISTRICT: \***: A dropdown menu (partially visible).
- AC: \***: A dropdown menu (partially visible).

# EXAMPLES OF CRITICAL MISTAKES

## **First Level Checking of EVMs and VVPATs**

- Non-Update of FLC-OK or FLC-Reject status in EMS through Mobile-App on day to day basis.
- FLC of VVPATs without using Dummy Ballot Paper on BU.
- Non-Uploading of 16 candidates (including NOTA) Dummy Symbols in the 1% VVPATs used for testing with 4-BUs having 64 dummy symbols (including NOTA)
- Irregularity on use of Dummy Symbols

## **Commissioning of EVMs and VVPATs**

- Non-checking of candidate symbols uploaded in VVPAT during commissioning.
- In case of M3 EVMs, M3 VVPATs and all BUs should be connected at the time of commissioning of the EVMs otherwise EVM will not accept a VVPAT or BU at a later stage.

## **Transportation of VVPATs**

- Not Locking the paper roll when transporting the VVPAT from one place to another

## **Dispersal**

- Switching on the VVPAT at the time of dispersal causing machine to go into error mode.

# EXAMPLES OF CRITICAL MISTAKES

## Mock-Poll on Poll Day

- Not pressing the CLOSE button of CU after mock-poll.
- Not matching the mock-poll result of the CU with the VVPAT Paper Slips.
- Non-deletion of mock-poll data from the Control Unit.
- When setting up the EVMs and VVPATs in the polling station, the VVPAT should be positioned so as to avoid direct light falling on it.
- Do not position the VVPAT near an open window or directly under a bulb or halogen lamp.

# EXAMPLES OF CRITICAL MISTAKES

## During Poll

- Conducting mock poll, in case of replacement of VVPAT only as Mock poll is **not** required to be conducted in case of only VVPAT being replaced.
- In case of non-functioning of CU or BU replacing only CU or BU. In such case both BU and CU along with VVPAT shall be replaced.
- Non-pressing of CLOSE Button after completion of Poll.
- Damaging any seal of BU/CU/VVPAT.

## General

- Do not repeatedly switch ON and OFF the VVPAT as it will deplete the battery as well as paper roll.
- Switch OFF the CU when connecting or disconnecting the EVMs/VVPATs and do not pull the cable for disconnecting.
- In case of M3 VVPAT, there is no VSDU and VVPAT status will be displayed on the CU Display Panel.

## IMPORTANT JUDGEMENTS

### **1. Delhi High Court (Viplav Sharma Vs Union of India and Ors CWP No. 5521 of 2004; Kunwar GS Chahan Vs Union of India CPW No. 5906 of 2004)**

In these cases, it was contended that the Election Commission could use electronic voting machines under Section 61A only in selected constituencies having regard to the circumstances of each case, and not routinely in all the assembly constituencies in a state. The above petitions were dismissed by the Delhi High Court on 23.5.2005.

### **2. Karnataka High Court (Michael Fernandes Vs C K Jafer Sharif and Ors Election Petition No. 29 of 1999)**

The issue of possible tampering of EVM has been raised before the Karnataka High Court. After going into all aspects of the technological soundness and the administrative measures involved in the use of EVMs at elections in India, have held that the EVMs in India are credible, reliable and totally tamperproof. The Hon'ble Karnataka High Court held that *'This invention is undoubtedly a great achievement in the electronic and computer technology and a national pride'*.

# IMPORTANT JUDGEMENTS

## **3. Bombay High Court (Nagpur Bench) (Banwarilal Purohit Vs Vilas Muttemwar and Ors Election Petition No. 1 of 2004)**

The issue of possible tampering of EVM has also been raised before the Bombay High Court (Nagpur Bench). The Hon'ble Bombay High Court (Nagpur Bench), examined the experts produced by the petitioner as witness before the High Court. The order of the Hon'ble High Court records that the two experts produced as witnesses admitted that the hardware and software used in the EVMs are matters not known to public at large, or even experts including the witnesses, and they admitted that the information or data in the EVMs is not made open unauthorized.

## **4. Kerala High Court (TA Ahammed Kabeer Vs AA Azeez and Ors Election Petition No. 4 of 2001)**

In one of the cases as directed by the Hon'ble High Court of Kerala in Election Petition No.4/2001, the process of detecting votes cast by impersonators was carried out before the Hon'ble Court in the case of General Election from 125-Evavipuram Assembly Constituency in Kerala in 2001. The High Court in its order dated 6.2.2002 had recorded its appreciation on the efficiency of the mechanism. The judgment of the Kerala High Court in the said Election Petition was upheld by the Hon'ble Supreme Court in Civil Appeal (AIR 2003 SC 2271).

For any queries please feel free  
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**THANKS**