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# VVPAT Machine

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**Why is in news?** What are VVPATs, and why has Jairam Ramesh written to EC about them?

Congress leader Jairam Ramesh wrote to Chief Election Commissioner Rajiv Kumar on December 30, requesting that a team of INDIA group leaders be provided with an opportunity to meet him and his colleagues to put forward their point of view on VVPATs.

In his letter to Rajiv Kumar, Jairam Ramesh said that on December 20, 2023, INDIA front leaders had requested an appointment with the ECI to “discuss and provide suggestions on the use of VVPATs” based on a resolution passed at a meeting of leaders of the bloc the previous day. The resolution called for 100% verification of VVPAT slips.

## VVPATs:

When a vote is cast, the Voter Verifiable Paper Audit Trail (VVPAT) machine, which is attached to the ballotunit (BU) of the Electronic Voting Machine (EVM), **prints out a slip of paper with the voter’s choice indicated on it.**

When a vote is cast, a slip is printed on the VVPAT printer containing the **serial number, name and symbol** of the candidate voted.

The **printed slip is visible for seven seconds** so the voter can see that the vote has been recorded correctly, before it falls into a box underneath.

Thereafter, this printed slip automatically gets cut and falls into a sealed drop box. If there is a need, these printouts can later be counted.

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## WHAT IS VVPAT?

**A.** Voter Verifiable Paper Audit Trail (VVPAT) helps voters to physically confirm the choice they have made. It consists of:

- A printer that gives a record of voters' selection
- A display unit that shows any error



## WHAT THE VVPAT SLIP CONTAINS?

**A.**

- A candidate serial number
- Name of the candidate
- Corresponding symbol.

VVPAT paper roll is designed for printing **1,500** ballot slips for each election



## HOW IT WORKS?



**A.** The printed VVPAT slip is displayed for 7 seconds before it is automatically cut and delivered to a sealed ballot compartment



### Evolution of VVPATs in India:

The idea of the VVPAT machine **first emerged in 2010**, when the EC held a meeting with political parties to discuss the EVM and ways to make the polling process more transparent. After discussing the idea, the EC referred the matter to its Technical Expert Committee.

It was prepared by the two PSUs that manufacture EVMs – **Bharat Electronics Limited (BEL)** and **Electronics Corporation of India (ECIL)** in consultation with experts from Election Commission of India.

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Subsequently, **field trials** were held in Ladakh, Thiruvananthapuram, Cherrapunjee, East Delhi and Jaisalmer in **July 2011**.

Finally, after fine-tuning the design, holding more trials and taking feedback from political parties, the expert committee approved the design of the VVPAT in February 2013.

The **Conduct of Elections Rules, 1961** were **amended in 2013** to allow for a printer with a drop box to be attached to the EVM.

The **VVPAT was used for the first time** in all 21 polling stations of the **Noksen Assembly constituency of Nagaland** in 2013, after which the EC decided to introduce VVPATs in a phased manner.

From **June 2017, 100% of VVPATs began** to be used in polls, and the 2019 Lok Sabha elections became the first general election to have 100% of EVMs being attached to VVPATs.

VVPAT machines can be **accessed by polling officers only**.

According to ECI, EVMs and VVPATs are **separate entities** and are not connected to any network.

### What percentage of VVPAT slips are counted as of now?

When it came time to decide what percentage of the VVPAT slips should actually be counted to verify the accuracy, the EC asked the Indian Statistical Institute (ISI) in 2018 to come up with a “mathematically sound, statistically robust and practically cogent sample size for the **internal audit of the VVPAT slips with electronic result of EVMs**”, the EC affidavit said.

The EC **also met political parties to discuss the issue**, where **demands for 10% to 100% counting emerged**.

In February 2018, the EC mandated the counting of VVPAT slips of one randomly selected polling station per Assembly constituency. This was increased to five polling stations per Assembly seat, following a Supreme Court judgment in April 2019 on a petition filed by TDP leader Chandrababu Naidu.

Meanwhile, the ISI report to the EC in March 2019 recommended that a random sample of 479 EVMs be selected for counting of VVPAT slips.

“If for each of the selected machines, the EVM count matches with the VVPAT count, then it can be concluded with an **extremely high statistical confidence** (more than 99.993665752% confidence) that the proportion of defective EVMs is less than 2%,” the ISI report said.

### Why does the INDIA alliance want 100% counting of VVPAT slips?

In its resolution passed on December 21, the INDIA alliance stated: “Instead of the VVPAT slip falling in the box, it should be **handed over to the voter** who shall then **place it in a separate ballot box after having verified** his or her choice. 100% counting of VVPAT slips should then be done. This **will restore full confidence of the people** in free and fair elections”.

### What has the EC said?

Last year, the EC told the Supreme Court that **verification of VVPATs** of five randomly selected polling stations per Assembly seat, with more than 4,000 total Assembly seats in India, translated to 20,600 EVM-VVPAT systems – well above the ISI’s recommendation of 479.

In Lok Sabha and Assembly elections so far, the EC said, 38,156 VVPATs have been checked randomly.

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“**Not a single case** of transfer of vote meant for candidate ‘A’ to candidate ‘B’ has been detected,” the EC said.

But, the EC did admit that “differences in count, if any, have **always been traceable to human errors** like non-deletion of mock poll votes” from the control unit of the EVM or the VVPAT.

Since the introduction of VVPATs in 2017, the EC said it had received 25 complaints (including 17 during the 2019 Lok Sabha polls) out of the 118 crore voters who have cast their votes. It said **all these complaints were found to be false**.

The EC said the VVPAT was “**essentially an audit trail**” so the voter could verify the vote at that instant, but following Supreme Court orders, the slips were being tallied on a “statistically robust basis”.

The EC said pressing for 100% verification was a “regressive thought and tantamount to going back to the days of manual voting using ballot system”.

It said **manual counting of all VVPAT slips** would take time and introduce the potential of human error.

### **Advantage VVPAT:**

The Voter Verified Paper Audit Trail is a method that **provides feedback to voters**.

It is an **independent verification printer machine** and is attached to electronic voting machines.

It **allows voters to verify** if their vote has gone to the intended candidate.

Under VVPATs, initially, election results are announced based on the recording of votes given by EVMs. If the election results are disputed, then the votes recorded under Paper Trail System shall be counted and announced.

If there is **any discrepancy** between the two results, then the **result given by VVPAT will prevail** over the EVMs.

### **Challenges:**

The **possibility of technical problems** with VVPAT machines is a major concern. A paper receipt of the voter's vote is supposed to be printed by the machines and placed in a box afterward.

One more test is the **check of the documentations** created by the VVPAT machines. Even though the machines are supposed to keep a physical record of who voted, it's not always clear how this record can be checked, especially when the electronic and paper records are different.

The **public's faith in the electoral process** has been further eroded by recent reports of defective VVPAT machines. Questions have been raised **regarding the accuracy and fairness of the elections** as a result of the EC's lack of transparency and accountability.

### **Way Forward:**

One way to address the issue of technical malfunctions is to **ensure regular maintenance of the machines**. The EC should establish a **system of routine maintenance and testing** to identify and address any defects in a timely manner.

To address concerns about the verification of paper trails, the EC should **increase transparency** in the electoral process. This can be achieved by **providing more information to political parties and the public** about the functioning of the VVPAT machines and the process of verification.

The **EC should take responsibility for the defective VVPAT machines** and take steps to ensure that such incidents do not occur in the future.

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This can be achieved by **instituting a system of accountability** for those responsible for maintaining and testing the machines.

Finally, there is a **need for ongoing research and development** in the field of electronic voting. **New technologies and innovations** should be explored to improve the accuracy, security, and transparency of the electoral process.