IN THE SUPREME COURT OF INDIA

CIVIL ORIGINAL JURISDICTION

WRIT PETITION (CIVIL) NO. 273 OF 2019

IN THE MATTER OF:

N. CHANDRABABU NAIDU & ORS. ... PETITIONERS

Versus

UNION OF INDIA & ANR. ... RESPONDENTS

PAPER – BOOK

COUNTER AFFIDAVIT ON BEHALF OF THE RESPONDENT NO. 2

VOL-II

ADVOCATE FOR THE RESPONDENT NO. 2: AMIT SHARMA

INDEX

S. NO.	PARTICULARS	PAGE NOS.
15.	**ANNEXURE-C/14** True copy of the Letter No. 51/8/7/2017-EMS, dated 30.08.2017, issued by the Election Commission of India	187- 191
16.	**ANNEXURE-C/15** True copy of the Letter/Instructions dated 19.09.2017 issued by the Election Commission of India	192
17.	**ANNEXURE-C/16** True copy of the Letter/Instructions dated 29.09.2017 issued by the Election Commission of India	193 – 194
18.	**ANNEXURE-C/17** True copy of the Letter/Instructions dated 11.10.2017 issued by the Election Commission of India	195
19.	**ANNEXURE-C/18** True copy of the Letter/Instructions dated 13.10.2017 issued by the Election Commission of India	196 – 198
20.	**ANNEXURE-C/19** True copy of the Letter/Instructions dated 13.10.2017 issued by the Election Commission of India	199
21.	**ANNEXURE-C/20** True copy of the Letter/Instructions dated 16.10.2017 issued by the Election Commission of India	200 - 225

22. **ANNEXURE-C/21** 226 - 227

True copy of the Order dated 30.10.2017 passed by this Hon'ble Court in W.P. (C) No. 983 of 2017

23. **ANNEXURE-C/22** 228 - 229

True copy of the Circular No. 51/8/16/9/2017-EVM(P&L), dated 09.11.2017, issued by the Election Commission of India

24. **ANNEXURE-C/23** 230

True copy of the Order dated 20.11.2017 passed by this Hon'ble Court in Writ Petition (C) No. 1012 of 2017

25. **ANNEXURE-C/24** 231 - 259

True copy of the Letter No. 51/8/VVPAT/2017-EMS dated 05.12.2017 issued by the Election Commission of India

26. **ANNEXURE-C/25** 260 - 271

True copy of the Order dated 12.12.2017 passed by the Hon'ble High Court of Gujarat in Special Civil Application No. 22074 of 2017

27. **ANNEXURE-C/26** 272

True copy of the Order dated 15.12.2017 passed by this Hon'ble Court in SLP (C) Diary No. 41165 of 2017 (Mohd. Arif Rajput Vs. Election Commission of India Nirvachan Sadan & Ors.)

28. **ANNEXURE-C/27** 273 – 276

True copy of the Letter No. 51/8/VVPAT-INST/2018-EMS dated 13.02.2018 issued by the Election Commission of India

29.	**ANNEXURE-C/28** True copy of the Letter No. 51/8/VVPAT/2018/EMS dated 08.03.2018 issued by the Election Commission of India	277 -
30.	**ANNEXURE-C/29** True copy of the Letter No. 51/8/16/4/2018-EMS, dated 18.06.2018, issued by the Election Commission of India	278 -
31.	**ANNEXURE-C/30** True copy of the Letter No. 51/8/16/4/2018-EMPS, dated 28.09.2018, issued by the Election Commission of India	279
32.	**ANNEXURE-C/31** True copy of the Letter No. 51/8/T&A/2018-EMPS, dated 09.10.2018, issued by the Election Commission of India	280 - 284
33.	**ANNEXURE-C/32** True copy of the Judgment and Order, dated 12.10.2018, passed by this Hon'ble Court in Writ Petition (C) No. 935 of 2018 (Kamal Nath Vs. Election Commission of India & Ors.) and Writ Petition (C) No. 1000 of 2018 (Sachin Pilot Vs. Election Commission of India & Ors.)	285- 306
34.	**ANNEXURE-C/33** True copy of the Report dated 22.03.2019 submitted by the Indian Statistical Institute, Delhi	307 - 346

187

ANNEX - C/14

By Speed Post/e-mail

ELECTION COMMISSION OF INDIA

NIRVACHAN SADAN, ASHOKA ROAD, NEW DELHI-110001

No.51/8/7/2017-EMS

Dated: 30th August, 2017

To

1. The Chief Electoral Officers of
   All States and Union Territories.

2. The Chairman-cum-Managing Directors of
   a) Bharat Electronics Limited, Bangalore: and
   b) Electronics Corporation of India Limited, Hyderabad.

Subject: Instructions on EVMs & VVPATs Regarding.

Sir/Madam,

The Commission had constituted a Working Group to revisit the existing administrative protocols for storage, transportation, stock-management etc. of EVMs and VVPATs to ensure end-to-end security protocol for safe, smooth and transparent movement of EVMs and VVPATs and their use in transparent manner. Considering the report of the group, the Commission has directed that henceforth, in addition to the existing instructions the following instructions shall be followed-

1. **Transportation of EVMs & VVPATs:** For any transportation of EVMs/VVPATs from one place to another (i.e. from factory to States, Inter-State, Intra-State etc.), following protocols shall be strictly followed:

   (a) Movement of EVMs & VVPATs should mandatorily be done through EVM Tracking Software (ETS).

   (b) Containerized trucks or sealed trucks on which proper locking arrangements can be made shall only be used for transporting EVMs and VVPATs, so that these could be locked and sealed with paper seals.

   (c) All trucks transporting EVMs/VVPATs shall be sealed with lock and paper seals.

   (d) Vehicles with GPS tracking only should be used for movement of EVM/VVPAT.

   (e) Political Parties shall be informed in advanced about opening, stocking & sealing of warehouses while shifting EVMs and VVPATs. However, if no representative attends, the work should not stop.

   (f) DEO to video-graph the whole process of transfer/receipt of EVM.

188

(i) Transportation from Factory to State

(a) GPS tracking of vehicles shall be monitored on daily basis by the District Election Officers and randomly monitored by the Chief Electoral Officers. A daily monitoring report shall be sent by the Chief Electoral Officer to the Commission.

(b) For transportation of EVMs/VVPATs (newly manufacture or repaired) from factory to State, transportation arrangements shall be done by the manufacturers. The transportation charges for shifting of repaired EVMs/VVPATs from factory to State/UT allocated by the Commission shall be borne by the State/UT concerned.

(c) Manufacturers shall undertake Due Diligence for empaneling/engaging transport companies for transportation of EVMs/VVPATs.

(d) Consignee State/UT shall depute its official at factory with security personnel from their State and follow the security protocol for Inter State transfers.

(ii) Inter State Transportation

(a) A nodal officer at State as well as District level shall be appointed for constant coordination for smooth transportation of EVMs in donor and borrower States.

(b) As far as possible, the CEOs shall ensure the location of districts for collection of EVMs/VVPATs by borrowing State are in a cluster or on the same route.

(c) DEOs shall ensure that neither defective nor EVMs/VVPATs under conflict in ETS' are transferred to the borrowing State.

(iii) Intra State Transportation

(a) Intra-district allocation as well as inter-district allocations to be done as per existing instructions only.

(b) All movements of EVMs/VVPATs shall be done through ETS and with prior permission of the Commission.

(c) In case of exigencies like flood or fire the CEO/DEO may shift the EVMs/VVPATs under intimation to the Commission and also take post facto approval.

(d) DEOs will ensure appointment of team to accompany the truck for transporting EVMs/VVPATs, arrangement of district transport, arrangement for proper handing over and receipt of EVMs/VVPATs.

189

2 Storage and Security Arrangements for EVMs & VVPATs

(a) The authorised representatives of Political Parties shall be allowed to witness the Annual Physical Verification of EVMs & VVPATs.

(b) Duty Register of persons engaged in physical verification to be maintained. This register shall be preserved for 5 years.

(c) **For warehouses at district headquarters, there shall be a double-lock system. The Keys shall be in custody of DEO & Dy. DEO, each having one key**. Handing over and taking over of keys to be a part of CTC.

(d) Main switch of the warehouse/strong room should be installed outside the warehouse/strong room and the electricity be disconnected after sealing the warehouse/ strong room to avoid short circuiting. No externally powered unit should be installed or kept inside the strong room.

(e) After opening the strong room for counting of votes, complete videography of taking out/bringing back of Control Units shall be done. Agents of candidates should also be allowed to watch strong room through CCTV coverage.

(f) A log book must be maintained for the persons who have been allowed/deputed to view the CCTV.

(g) The minimum security requirement for strong room of polled EVMs must be One Platoon. A logbook shall be maintained during the said period.

(h) 24x365 Police Security of EVM/VVPAT warehouses. In addition, CCTV from start of FLC till EP completion period.

(i) Security: Non Poll (Past EP to FLC) – Minimum 1/2 Section
FLC to Polling – Minimum 1 Section
Poll to EP - Minimum 1 Platoon

3. Randomizations of EVMs & VVPATs: Randomizations of EVMs & VVPATs shall be done through ETS only.

4. Preparation of EVMs & VVPATs (Candidate Setting)

(a) In the written invitation, conveying schedule for preparation of EVMs/VVPAT to be sent to the Candidates, it shall be mentioned that they/their representatives must be

present to oversee preparation of EVMs/VVPATs and actively participate in the mock poll process.

(b) Manufacturers shall provide Protocol/checklist on preparation of EVMs/VVPATs to DEO/RO beforehand for proper watch on work of Engineers.

(c) Manufacturers shall also depute Sr. Level Engineers at State and District levels for supervision and coordination during preparation of EVMs/VVPATs.

5 Replacement of defective EVMs & VVPATs on Poll Day

a) **Blue** self-adhesive stickers (3"X2") with the words 'Replaced EVM' or 'Replaced VVPAT', shall be pasted on the Green Sticker pasted on EVM/VVPAT replaced during poll, for identification.

ELECTION COMMISSION OF INDIA

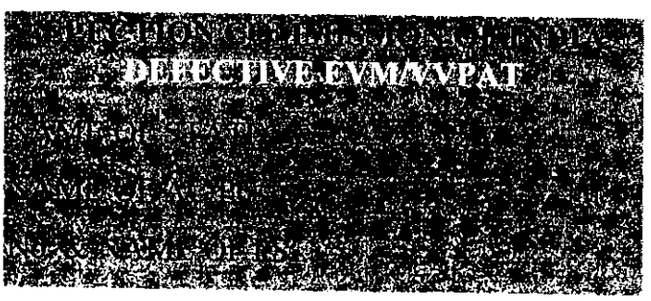
NAME OF STATE.....

NAME OF AC/PC.....

No. & NAME OF PS.....

(Sample of Blue Sticker)

b) **Red** self-adhesive stickers (3"X2") with the words 'Defective EVM' or 'Defective VVPAT', shall be pasted on the Green Sticker pasted on the EVM/VVPAT found defective after FLC and before start of poll for identification.



(Sample of Red Sticker)

c) Returning Officers shall be responsible for ensuring pasting of these stickers.

191

6 Repairing of defective EVMs & VVPATs

(a) No EVMs/VVPATs, whether defective or defect-free, shall be transported during the period from commencement of Candidate Setting to the Counting day except the EVMs/VVPATs required to be transported for use in polls in subsequent phases. In such case, the political parties/candidates shall be informed in writing conveying the purpose of shifting of such EVMs/VVPATs.

(b) All Defective EVMs/VVPATs not used in the poll shall be stored in a separate room/warehouses, preferably in a separate campus, if possible, and shall never be stored along with **working EVMs/VVPATs.**

(c) EVMs/VVPATs found defective during FLC shall be sent to the manufacturers for repair within **7 days** of completion of FLC in that district. The CEO shall coordinate and club defective EVMs/VVPATs of multiple districts for despatch to the factory.

(d) EVMs/VVPATs found defective during candidate setting or mock-poll on poll day shall be stored in a separate warehouse, however, EVMs/VVPATs found defective after mock-poll (i.e. during actual poll) on poll-day shall be stored alongwith polled EVMs/VVPATs.

(e) POST ELECTION REPAIRS: After election all the defective EVMs & VVPATs shall be sent to the respective factory for repairs.

(f) After repairs are carried out, the testing protocol for all repaired machines shall be exactly the same as for new EVMs/VVPATs.

One Officer in the office of Chief Electoral Officer (Addl./Jt./Dy. CEO) shall exclusively be an 'EVM Officer', preferably with the technical knowledge.

Yours faithfully,

(Madhusudan Gupta)
Under Secretary

T/C

192

ANNEX- C/15

ELECTION COMMISSION OF INDIA

NIRVACHAN SADAN, ASHOKA ROAD, NEW DELHI-110001

No.51/8/VVPAT/2017-EMS

Dated: 19th September, 2017

To

The Chief Electoral Officers of
all States and Union Territories.

Subject: Universal use of Voter Verifiable Paper Audit Trail (VVPAT) with EVM in all future General and Bye-elections to the State Legislative Assemblies and Lok Sabha at all polling stations - regarding.

Sir,

The Hon'ble Supreme Court of India in its order, dated 08.10.2013 in the Civil Appeal No. 9093 of 2013, permitted the ECI to introduce VVPATs in gradual stages in the general elections and further added that the area, State or actual booth (s) are to be decided by the ECI and the ECI is free to implement the same in phased manner. Since August 2013, VVPATs are being used with EVMs continuously, in selected constituencies, as per the availability of VVPATs. In the meeting of political parties held on 12th May, 2017, the Commission announced 100% coverage of VVPATs in all future election to Lok Sabha and State Legislative Assemblies.

Now, the Commission has directed that henceforth, VVPAT shall be used with EVMs at all the polling stations in all the future Elections to the Parliament and State Legislative Assemblies conducted using EVMs.

You are, therefore, requested to ensure that VVPATs shall be used with EVMs, in all polling stations, during General and Bye-elections to the State Legislative Assemblies and Lok Sabha.

The above direction of the Commission shall be brought to the notice of all concerned.

Yours faithfully,

(Madhusudan Gupta)
Under Secretary

193

ANNEX-C/16

ELECTION COMMISSION OF INDIA

NIRVACHAN SADAN, ASHOKA ROAD, NEW DELHI-110001

No. 51/8/7/2017-EMS

Dated: 29th September, 2017

To

The Chief Electoral Officers of
All States and Union Territories.

Subject: Taking out EVMs including VVPATs for training and awareness purpose-reg.

Sir/Madam,

As per existing instructions of the Commission, after FLC is over, first randomization of EVMs and VVPATs is to be done to randomly assign EVMs and VVPATs to Assembly Constituencies (ACs) and for Training and Awareness Programs. This should be done before the start of training of polling personnel. Generally, first randomization is done after announcement of election by the Commission. The Commission has already directed to use 100% VVPATs in all elections to the House of the People and State Legislative Assemblies. To ensure proper awareness on use of VVPATs with EVMs, the Commission has directed that **after FLC of EVMs and VVPATs**:

(i) EVMs and VVPATs may be taken out for awareness purpose whenever needed even before first Randomization subject to an upper ceiling of 5% of the total allocation to the District. However, Training EVMs and VVPATs will be taken out as is being followed till now i.e. during first randomization of EVMs and VVPATs.

(ii) Political Parties should necessarily be invited to witness this process from opening of Warehouse and re-scaling of warehouse after taking out the EVMs/VVPATs for awareness. Entire process to be videographed.

(iii) The list of such EVMs and VVPATs to be used for awareness purpose shall immediately be given to the National and State Recognised Political Parties. This list shall also be shared with the candidates/their agents, as and when they are finalized.

(iv) A sticker of Bright Orange colour mentioning "VOTER AWARENESS" shall be affixed on such EVMs and VVPATs.

(v) The abovementioned EVMs and VVPATs shall be stored in a safe and secure manner in a separate room/hall under lock and seal with proper security. Under no circumstances, the safety and security of these EVMs and VVPATs shall be allowed to be compromiseds.

(vi) Such EVMs and VVPATs shall be given only to the authorised officials deputed by the District Election Officer concerned.

(vii) The DEO shall ensure that the officials chosen for creation of EVM/VVPAT related awareness/IEC campaign, as well as those nominated for handling these EVMs and VVPATs must be comprehensively trained on the usage and functioning of the EVMs and VVPATs.

(viii) Proper log book shall be maintained.

(ix) Awareness EVMs/VVPATs can be added to Training EVMs/VVPATs, if required.

(x) Both Training and Awareness EVMs/VVPATs can be added to poll day reserve, if required, after due process of FLC, randomizations and Candidate Setting in the presence of political parties/contesting candidates/their agents.

Yours faithfully,

(Madhusudan Gupta)
Under Secretary

Copy to:

1. The Chairman-cum-Managing Director,
   Bharat Electronics Limited,
   Nagavara, Outer Ring Road,
   Bangalore-560045, Karnataka.

2. The Chairman-cum-Managing Director,
   Electronics Corporation of India Limited,
   Hyderabad, Andhra Pradesh.

Tle

195

ANNEX- C/17

ELECTION COMMISSION OF INDIA

Nirvachan Sadan, Ashoka Road, New Delhi-110001

No.51/8/VVPAT/2017-EVM Dated: 11th October, 2017

To

The Chief Electoral Officers of
1. Gujarat, Gandhinagar
2. Himachal Pradesh, Shimla

Subject: Verification of VVPAT paper slips-regarding.

I am directed to intimate that the Commission has directed that in the forthcoming General Elections to State Legislative Assemblies of Gujarat and Himachal Pradesh, **mandatory** verification of VVPAT paper slips of randomly selected 01 (one) polling station per Assembly Constituency shall be done on a 'pilot' basis. The above mandatory verification of VVPAT paper slips of 01 (one) polling station (randomly selected) will be **in addition** to the provisions of Rule 56D of the Conduct of Elections Rules, 1961.

Detailed instructions for this purpose will be issued separately.

The above direction of the Commission shall be brought to the notice of all concerned.

Yours faithfully,

(Madhusudan Gupta)
Under Secretary

T/C

196

ANNEX- C/18

ELECTION COMMISSION OF INDIA

NIRVACHAN SADAN, ASHOKA ROAD, NEW DELHI-110001

No. 51/8/VVPAT/2017-EMS

Dated: 13th October, 2017

To

The Chief Electoral Officers of

1. Gujarat, Gandhinagar
2. Himachal Pradesh, Shimla.

Subject: Verification of VVPAT paper slips- Pilot Testing – regarding.

Sir,

I am directed to state that the Commission has mandated that VVPATs will be used with EVMs at all polling stations in all future General/Bye-Elections to the Parliament and the State Legislative Assemblies, including the upcoming General Elections to State Legislative Assemblies of Himachal Pradesh and Gujarat at all Assembly Constituencies. Now, the Commission has directed that in the General Elections to State Legislative Assemblies of Himachal Pradesh and Gujarat, **mandatory** verification of VVPAT paper slips of randomly selected 01 (one) polling station per Assembly Constituency shall be done on a 'pilot' basis. The above mandatory verification of VVPAT paper slips of 01 (one) polling station (randomly selected) will be **in addition** to the provisions of Rule 56D of the Conduct of Elections Rules, 1961.

For this 'pilot' verification of VVPAT paper slips of randomly selected 01 (one) polling station per Assembly Constituency, the following procedure shall be followed:

1. The verification of VVPAT paper slips of randomly selected 01 (one) polling station for each Assembly Constituency shall be taken up after the completion of the last round of counting of votes recorded in the EVMs.
2. The random selection of 01 (one) polling station per Assembly Constituency shall be done by Draw of lots, by the Returning Officer concerned, in the presence of candidates/their agents and the General Observer appointed by the Commission for that Assembly Constituency.
3. The draw of lots must be conducted immediately after the completion of the last round counting of votes recorded in the EVMs (Control Units) in the designated Counting Hall for the particular Assembly Constituency.
4. A written intimation regarding the conduct of draw of lots for the random selection of 01 (one) polling station for verification of VVPAT Slips shall be given by the Returning Officer to the Candidates/their election agents well in advance.
5. The following procedure shall be followed for the conduct of draw of lots:

197

a. White colour paper cards of postcard size shall be used for conducting the draw of lots.

b. Total number of such paper cards should be equal to total number of polling stations in the Assembly Constituency.

c. The paper cards shall have pre-printed Assembly Constituency number, AC name and date of polling on the top, and the polling station number in the centre. Each digit of the polling station number shall be atleast 1" x 1"(1 inch by 1 inch) size and printed in black ink.

d. The paper cards to be used for draw of lots should be four-folded in such a way that polling station number is not visible.

e. Each paper card shall be shown to the candidates/their agents before folding and dropping in the container.

f. The paper cards shall be kept in the big container and must be shaken before picking up 01 (one) slip by the Returning Officer.

6. The verification of VVPAT paper slips shall be done in a 'VVPAT Counting Booth' (VCB), specially prepared for this purpose inside the Counting Hall. The booth shall be enclosed in a wire mesh just like a bank cashier's cabin so that no VVPAT paper slip can be accessed by any unauthorized person. One of the Counting tables in the Counting Hall can be converted into the VCB and can be used for normal counting of round-wise EVM votes before the count of VVPAT slips as per random selection after the completion of round-wise EVM counting.

7. The Verification count of the VVPAT paper slips of the randomly selected 01 (one) polling station shall be conducted strictly in accordance with the instructions of the Commission on counting of printed paper slips.

8. The Returning Officer shall personally supervise the counting of VVPAT paper slips at this booth. The General Observer concerned shall ensure close and careful observation of the entire exercise and ensure strict compliance of the Commission's instructions.

9. The above process shall be fully videographed.

10. After completion of the above process, the Returning Officer shall give a certificate in the annexed format.

The above direction of the Commission shall be brought to the notice of all concerned.

Yours faithfully,

(Madhusudan Gupta)
Under Secretary

Annexure

Pilot Testing of Counting of paper slips of VVPAT of 01 randomly selected polling station

Name of State:.....

No. and Name of Assembly Constituency:.....

Sl.No. and name of Polling Station:.....

Unique ID of Control Unit:.....

Unique ID of VVPAT:.....

It is certify that pilot testing of counting of paper slips of VVPAT of 01 randomly selected polling station has been conducted as per the instructions of the Commission.

Name of Candidate	No. of Votes Cast		Discrepancy if any
	As per EVM	As per Paper Slips	
1.			
2.			
3.			
--			
--			
NOTA			
TOTAL VOTES			

Signature of Counting Agents

1.....

2.....

3.....

Signature of Counting Supervisor

Signature of Returning Officer

Signature of General Observer

TLC

199

ANNEX C/19

ELECTION COMMISSION OF INDIA

Nirvachan Sadan, Ashoka Road, New Delhi-110001

No.51/8/VVPAT/2017-EVM Dated: 13th October, 2017

To

The Chief Electoral Officers of
All States and Union Territories.

Subject: Counting of Printed Paper Slips of VVPATs in case of non-retrieval of result from the Control Unit – regarding.

Sir/Madam,

I am directed to refer to para 17.4.6 of Chapter 17 *(Instructions Relating to Counting)* of 'Manual on Electronic Voting Machine and VVPAT' (January 2017), wherein it has been mentioned that "In case, it is not possible to retrieve the result from the CU even after using printer, as instructed in para 17.4.4, the printed paper slips, where VVPAT is used, of the respective VVPAT to be counted ....."

The Commission has already directed to use VVPAT at every polling station in all elections to the House of the People and State Legislative Assemblies. Hence, in case of non-retrieval of result from any Control Unit, the printed paper slips of the respective VVPAT shall be counted, as per counting procedure prescribed by the Commission, for counting of printed paper slips.

A report regarding counting of printed ballot slips of VVPAT is to be sent to the Commission in the following format through Chief Electoral Officer concerned for information.

S. No.	No. & Name of Assembly Constituency	Polling Station No.	Unit ID of Control Unit from which result could not be retrieved	Unit ID of VVPAT	Total No. of votes recorded in EVM as per Item 6 in Part-I of Form-17C	Total No. of printed ballot slips taken out of the drop box(es)
1	2	3	4	5	6	7

Yours faithfully,

T/C

(Madhusudan Gupta)
Under Secretary

200

ANNEX- C/20

ELECTION COMMISSION OF INDIA

NIRVACHAN SADAN, ASHOKA ROAD, NEW DELHI-110001

Madhusudan Gupta
Under Secretary

No. 51/8/VVPAT/2017-EMS Dated: 16th October, 2017

To

The Chief Electoral Officers of
All States and Union Territories.

Subject: Instructions on use of EVMs with Voter Verifiable Paper Audit Trail system (VVPAT) - Regarding.

Sir/Madam,

In supersession of earlier instructions, the Commission has directed thatthe following instructions on use of VVPAT system with EVM shall be strictly followed in all General/Bye-elections to the House of the People (Lok Sabha) and State Legislative Assemblies:

1. Training of Master Trainers, Polling Personnel and storage Personnel:

Presiding Officers, Polling Officers, Returning Officer, Assistant Returning Officers, Sector Officers and Counting Personnel must be given hands-on-training related to their role/duties on use of EVMs with VVPATs. Every official should get an opportunity to operate the EVM with VVPAT system and understandthe process of recording the vote using VVPAT. Separate training should be given on counting of printed paper slips from the VVPAT system and tallying the count of VVPAT paper slips with the count of the Control Unit. A copy of VVPAT brochure **(Annexure-I)**should be given to all officers during training and be available at polling station on poll day.A training session may be incorporated in the training module of State Public Administration Institutions, on operation & use of VVPATs.

2. Awareness about use of VVPAT:

A demonstration of VVPAT system should be organized by the District Election Officers (DEOs) for political parties, Returning Officers and electors at suitable locations. The Returning Officers (ROs) shall arrange demonstration of VVPAT system for candidates and electors at suitable locations in the constituency. The poster "How to Cast Your Vote Using EVMs and VVPATs" **(Annexure-II)** on method of voting with VVPAT should be pasted at prominent places of the constituencies and at places in each polling station in a manner that voters waiting in the queue are able to read the instructions. The DEO and RO

should also organize programmes for awareness about use of EVMs with VVPAT on print media and local cable-network etc.A short film on How to Cast Your Vote using VVPAT with EVM shall be made in regional language for this purpose.

NOTE: ONLY FLC-OK EVMs & VVPATs WITH DUMMY SYMBOLs SHALL BE USED FOR TRAINING, AWARENESS AND DEMONSTRATION.

3. Preparation of EVMs and VVPAT system for Poll:

EVMs shall be prepared according to the instructions of the Commission on the preparation of EVMs for polls. The VVPAT system shall be prepared for poll in the following manner as mentioned in Rule 49B [4(c) (i) – (iii)] of the Conduct of Elections Rules, 1961:

i) The VVPAT consists of VVPAT Status Display Unit (VSDU) and VVPAT Printer unit. A new battery power pack shall be connected to the VVPAT unit and shut the door of the battery compartment, but no sealing is required on battery compartment as the power pack can be replaced if low battery status is indicated on VSDU during the poll.

ii) A fresh paper roll shall be installed in the printer unit by following the procedure mentioned in the user manual for VVPAT.

iii) Serial numbers, names of candidates and symbols allotted shall be loaded in VVPAT with the help of engineers. A test printout shall be checked with the ballot paper in Balloting Unit (BU).

iv) Then one vote to each candidate shall be givento check that the VVPAT is printing the paper slips accurately.

v) Thereafter, switch off the CU and seal the latches of paper roll compartment using thread seals and address tags.The candidates/their agents shall be allowed to affix their signatures with party abbreviations on Address Tags.

vi) The units should be randomly allocated to polling stations and kept in the respective carrying case.

4. Polling Parties:

One extra polling official must be provided to handle the VVPAT unit while constituting polling parties, to handle VVPAT unit and also to watch VSDU continuously during poll process. The official shall immediately inform the Presiding Officer of any error noticed in VSDU.At the time of dispersal of polling parties, two copies of the Trouble shooting instructions **(Annexure-III)** and List of additional items of polling materials **(Annexure-IV)** shall be handed over to the Presiding Officers. Adequate numbers of black

paper envelopes and plastic boxes may also be procured for storing the paper ballot slips from the VVPAT.

NOTE: "The Polling parties shall strictly be instructed NOT TO TEST VVPAT at the time of dispersal and before mock poll at polling station under any circumstance, as VVPATs issued to them are already checked & tested."

5. Conduct of Mock Poll and sealing of EVMs and VVPATs in the Polling Stations:

During the mock poll, BU and VVPAT should be placed in the Voting Compartment, where a Polling Officer should be present alongwith polling agents to observe. The CU and VSDU should be placed on the table of the Presiding Officer/Polling Officer. This Polling Officer will keep a record of the votes cast.

After the mock poll, Presiding Officer will ascertain the result in the CU, count the VVPAT paper slips in the presence of the polling agents and confirm that the results tally for each candidate. All mock poll data in CU and VVPAT paper slips from VVPAT must be removed by the Presiding Officer and the empty drop box verified by the Polling Agents.The mock poll VVPAT paper slips, should be stamped on their back side with rubber stamp having inscription **"MOCK POLL SLIP", thereafter these** mock poll VVPAT paper slips shall be kept in an envelope made of thick black paper and sealed with the seal of the Presiding Officer.The sample image of the said stamp is as under:

(The dimensions of the stamp to be used for the purpose should be 3cms X 1.5 cms)

The Presiding Officer and polling agents must put their signatures on the envelope. The number and name of the polling station, number and name of Assembly Constituency, date of poll and the words "VVPAT paper slips of Mock Poll" shall be written on the envelope.

This envelope must be kept in the special plastic box for mock poll and sealed with a pink paper seal placed all around in such a manner that opening of the box will require breaking of the seal. The number and name of the polling station, number and name of Assembly Constituency and the date of poll shall be written on the plastic box. The Presiding Officer and Polling Agents must put their signatures on the pink paper seal and keep the box along with other documents relating to elections. Thereafter, Presiding Officer will sign the

Mock Poll Certificate (**Annexure-V**) and seal the CU. The drop box of VVPAT should be sealed with an address tag before the actual poll starts.

6. Complaint about incorrect printing of particulars on paper slip:

If any voter alleges about the wrong printing of particulars of a candidate and/or symbol of that candidate on VVPAT paper slip printed by the printer on pressing of concerned blue (candidate) button on the Balloting unit to which the printer is connected, the Presiding Officer of the polling station should provide him a 'Form of Declaration' **(Annexure-VI)** to lodge a complaint and follow the procedure prescribed under rule 49MA, which reads as under:

"49MA. Procedure in case of complaint about particulars printed on paper slip. -

(1) Where printer for paper trail is used, if an elector after having recorded his vote under rule 49M alleges that the paper slip generated by the printer has shown the name or symbol of a candidate other than the one he voted for, the presiding officer shall obtain a written declaration from the elector as to the allegation, after warning the elector about the consequence of making a false declaration.

(2) If the elector gives the written declaration referred to in sub-rule (1), the presiding officer shall make a second entry related to that elector in Form 17A, and permit the elector to record a test vote in the voting machine in his presence and in the presence of the candidates or polling agents who may be present in the polling station, and observe the paper slip generated by the printer.

(3) If the allegation is found true, the presiding officer shall report the facts immediately to the returning officer, stop further recording of votes in that voting machine and act as per the direction that may be given by the Returning Officer.

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

(i) make a remark to that effect against the second entry relating to that elector in Form 17A mentioning the serial number and name of the candidate for whom such test vote has been recorded;

(ii) obtain the signature or thumb impression of that elector against such remarks; and

(iii) make necessary entries regarding such test vote in item 5 in Part I of Form 17C.".

7. Action in case of certain contingencies during poll:

Certain contingencies may arise during the polling process, which may require certain actions. These are as follows: -

a. In case the CU or the BU does not work properly, replacement of the whole EVM including CU, BU and VVPAT is required. No mock poll is required to be taken.

b. In case the VSDU is showing "Low Battery", the power pack battery of VVPAT should be replaced. It should be ensured that before taking out the power pack battery of VVPAT, control unit must be switched OFF and after installing new power pack battery in VVPAT, control unit should be switched ON. Control Unit should not be switched ON without installing power pack in VVPAT.

c. In case there is any other error, like "Paper Low" error, the VVPAT will stop printing and the error shall be displayed on the VSDU. In such case the VVPAT unit is to be replaced. No mock-poll is required to be taken. Therefore, if VVPAT has not printed the paper slip, or the printed paper slip has not been cut, the last voter whose paper slip has not been printed by VVPAT or has not been cut should be allowed to cast his vote after the VVPAT has been replaced. In case the printed paper slip has not been cut and is hanging from the paper roll, no effort should be made to make it fall into the drop box. It should be allowed to remain hanging as it means that the vote has not been recorded in Control Unit and as it is not to be counted at the time of counting of the printed-paper slips. The details of such an occurrence should be clearly recorded in the Presiding Officer's dairy in the following format: -

   i. The date and time of the occurrence.

   ii. The name of the voter and his serial number in the part in the electoral roll, who was allowed to cast his vote after replacement of VVPAT.

   iii. Whether the voter cast his vote after replacement of VVPAT or went away without casting his vote.

   iv. The Total number of votes cast before the occurrence.

In case of contingencies, the Presiding Officers mayalso refer to **Annexure-III** for solutions.

8. Counting of votes and printed ballot slips:

After announcement of result sheet entries, any candidate, their election agent or their counting agents may apply in writing to the RO to count the printed VVPAT paper slips in any or all polling stations. If such application is made, the RO shall pass a speaking order on whether the VVPAT paper slips should be counted. If the RO decides to allow the counting of the VVPAT paper slips of any or all polling stations, such decision of the RO must be recorded in writing along with the reasons thereof. The RO shall give due consideration to the following:

(a) Whether the total number of votes polled in that polling station is greater or lesser than the margin of votes between winning candidate and candidate making the application,

(b) Whether EVM had a problem and was replaced at that polling station during poll,

(c) Whether there was any complaint about VVPAT not printing or complaints by any voter under Rule 49MA in that polling station during the poll.

9. Arrangements for counting of VVPAT paper slips:

(a) One of the Counting Tablesinside the Counting Hall shall be earmarked by the Returning Officer as VVPAT Counting Booth (VCB) for Counting of VVPAT Paper Slips.

(b) VCB shall be enclosed in a wire-mesh just like a Bank Cashier Cabin, so that no VVPAT paper slip can be accessed by any unauthorised person.

10. Procedure to count VVPAT paper slips:

If the RO decides to count the printed paper slips of any polling station(s) on an appeal for recounting of any polling station(s), the following procedures shall be strictly followed:

Step-1:

i) For keeping VVPAT Paper Slips taken out from the Drop Box of the VVPAT, a sufficiently sized container with lid, of dimensions 14 inch X 10 inch X 5 inch (length x breadth x height), to easily accommodate around 1400 Printed Paper Slips, shall be kept on the table of VCB. This Container should be made of sturdy transparent material like plastic etc. Sample images of the Container are available in Annexure- VIII

ii) For keeping VVPAT paper slips of the respective candidates, a Pigeonhole Framework shall be prepared in advance according to the number of candidates including NOTA, *with one additional pigeonhole for keeping self-test slips of the VVPAT,* and shall be kept on the table of VCB.

(a) The minimum number of Pigeonholes in the Framework must be equal to the number of candidates plus 2 (two).

(b) The size of each compartment (Pigeonhole) must be atleast 6 inch X 4 inch X 4 inch (length x breadth x height).

(c) The pigeonhole structure should be made of sturdy transparent material like plastic etc, having a fixed base, to prevent any VVPAT paper slip from slipping underneath.

(d) The symbol of each contesting candidate as per the Ballot Paper should be affixed on the wall of the pigeonhole allotted to the particular candidates. The symbol should be printed in black and white on a plain paper of minimum size 4 inch X 3 inch. Sample images of the Pigeonhole Framework are placed in Annexure-VIII.

iii) Atleast 100 Rubber bands for making bundles of 25 VVPAT paper slips.

Step-2:

i) The VVPAT unit(s) of the respective polling station(s) should be brought to the VCB one by one, as the case may be.

ii) In case a VVPAT unit was replaced during poll at that polling station, all the VVPAT units used at that polling station should be brought to the VCB.

Step-3:

i) The printed paper slips shall be taken out from all the VVPATs used at the polling station, before beginning the counting of VVPAT paper slips for that polling station.

ii) Before taking out the VVPAT Paper Slips from the drop box, the address tag(s) of the drop box shall be crosschecked to ascertain that the VVPAT pertains to the respective polling station.

iv) The VVPAT Paper Slips taken out from the Drop Box of the VVPAT shall be first kept in the container as per specification at step-1 (i).

v) After taking out the VVPAT paper slips from Drop Box, the Counting Supervisor shall ensure that no VVPAT paper slip is left inside theVVPAT drop box and show the empty drop box to the counting agents.

vi) In case a VVPAT unit was replaced, it may so happen that an uncut fully or partially VVPAT paper slip is hanging and has not got cut and dropped in the drop box and still connected to the paper roll. This uncut VVPAT paper slip should not be torn and should not be counted because the vote is not recorded electronically in the CU unless the VVPAT paper slip is cut. In such an event, the last voter whose VVPAT paper slip was

not cut would have been given an opportunity to cast his vote after replacement of VVPAT and the VVPAT paper slip of the vote cast by him shall be in the next VVPAT used in that polling station.

vii) The drop box of the VVPAT will also have VVPAT slips of self-test report. These are easily identified, as they do not have either the name or the symbol of any candidate. These self-test report slips are to be preserved alongwith the VVPAT paper slips as part of the record but they are not to be counted.

Step-4:

i) The VVPAT paperslips should be segregated one-by-one and put in respective pigeon holes after showing each slip to the Counting agents. The paper slips bearing self-tests report shall also be segregated and put in a separate pigeonhole provided for the purpose.

ii) Bundles of 25VVPAT paper slips of respective candidates shall be prepared for counting purpose.

iii) VVPAT PaperSlips shall then be counted by the counting staff.

iv) Result of the VVPAT paper slips count shall be prepared in the format as per **Annexure-VII** and attached to Part-II of Form 17-C.

v) The result of the count of VVPAT paper slips shall be announced loudly in the counting hall and shown to the counting agents.

vi) As per Rule 56D(b) of the Conduct of Elections Rules 1961, if there is any discrepancy between EVM count and paper slip count, the paper slip count shall prevail. Hence, if there is discrepancy between the count of votes displayed on the Control Unit and the count of printed-paper slips in respect of that Polling Station, the result sheet will be amended as per the printed-paper slips count.

Step-5:

After completion of counting of VVPAT paper slips, the bundles of all the VVPAT Paper Slips shall be kept back in the Drop Box of the respective VVPAT and door of the Drop Box shall be sealed using address tags. The candidate(s)/their agents may also be allowed to affix their signature with party abbreviation on the Address Tags.

11. Removal of Thermal Paper Roll and Power Pack from VVPAT units:

After the result is announced, thermal paper rolls and power packs shall be removed from all the VVPAT units under videography and kept in separate strong room. **In no case, printed paper slips shall be taken-out of the Drop-Box of any VVPAT.**

12. Storage of VVPATs after counting of votes:

After completion of counting of votes, EVMs and VVPATs containing printed paper slips in its Drop box, shall be kept in the same strong room.

a) The Strong room shall not be opened till completion of Election Petition (EP) period i.e. till EP list is received from respective High Court.

b) After completion of Election Petition Period, the exact EP position should be ascertained from High Court concerned before opening the strong room.

13. Storage of VVPAT Paper Slips after expiry of period of filing of Election Petitions:

After expiry of the period of filing of Election Petitions (EPs) i.e. 45-days from the date of declaration of result, District Election Officers shall ascertain the position of EP from the concerned High Court. After obtaining the status of EP from the High Court concerned, the following action shall be taken:

A. Every VVPAT used in an election and kept in the custody of the District Election Officer shall be kept untouched, under the standard protocol of security, till confirmation of Election petition position from the High Court concerned after the completion of the period for filing Election Petition i.e. 45 days from the date of declaration of the result.

B. In the case of elections, where no election petition has been filed or no other court cases are pending, after the aforesaid period, the VVPATsshall be available for use in any future election or any other purpose like training, awareness, movement, physical verification etc.

Before moving any VVPAT, printed paper slips shall be taken out from Drop-box of the VVPATs as per procedure mentioned below:

i) A Notice informing the opening of Strong Room having VVPATs shall be given to the representatives of all political parties in writing at least 48 hours in advance, requesting them to remain present at the time of opening of strong room.

ii) The strong room shall be opened in the presence of the District Election Officer and representatives of Political Parties.

iii) The VVPAT paper slips shall be taken out from the Drop Box of VVPAT and kept in a paper envelope made of thick black paper, sealed using red wax under the seal of DEO. Name of election, number and name of assembly constituency, particulars of polling station, unique serial number of the VVPAT unit, date of poll and date of counting shall be mentioned on the envelope containing printed paper slips.

iv) The envelopes containing VVPAT paper slips shall be kept with all other statutory documents relating to that election till the statutory time limit.

v) Thorough checking of officials deputed for the removal of VVPAT paper slips and their sealing must be ensured. All pockets need to be emptied before entering the Sealing Room/Strong Room and thorough checking of officials leaving the sealing room should be done in addition to DFMD/Metal Detector Checking.

vi) Once the VVPAT paper slips have been taken out, the VVPATs must be kept in their separate designated warehouse. VVPAT should not be kept in the same warehouse where EVMs arestored.

vii) To ensure there is no deliberate attempt to remove any paper-slips from sealing room/strong room, the entire process should be conducted under high quality CCTV recording/videography.

C. In case of any election where election petition has been filed, the following action shall be taken:-

(i) If the EVMs or Counting of Votes are the subject of the election petition, the EVMs andVVPATs used at all Polling Stations in the constituency concerned shall continue to be kept in the safe custody of the District Election Officer, till such time the Election Petition is finally disposed of by the Courts.

(ii) If the EVMs or counting of votes are not the subject of the election petition, an application may be moved to the concerned Court for allowing the EVMs& VVPATs concerned to be taken out of the strong room for any future election or any other purpose like movement, physical verification etc.

(iii) In case VVPATs not involved in any Election Petition/Court Case are stored with the VVPATs involved in Election Petition/Court Case, the following procedure shall be followed for segregating the VVPATs not involved in any election petition/court case from the VVPATs involved in EP/Court case:-

(a) A Notice informing the opening of Strong Room having VVPATs involved in EP/Court Case as well as non-EP VVPATs, shall be given to the petitioners/respondents of the EP/Court Case and the representatives of all political parties in writing at least 72 hours in advance, requesting them to remain present at the time of opening of strong room.

(b) The strong room shall be opened in the presence of the District Election Officer, Petitioners/respondents of the EP/Court case and representatives of Political Parties.

(c) The VVPATs not involved in any EP/Court Case shall be segregated from the VVPATs involved in EP/Court Case for taking out of the strong room. A list of VVPATs being so taken out from the strong room shall be prepared.

(d) The VVPATs, which are not involved in any EP/Court Case, should only be taken out of the Strong room.

(e) The procedure mentioned in para 13 (B) above shall be followed for taking-out the printed paper slips from all such VVPATs, following which the VVPATs are available for any subsequent deployment/use.

(f) The entire process shall be videographed and videography must be preserved for record.

The above instructions shall be brought to the notice of all concerned.

Yours faithfully,

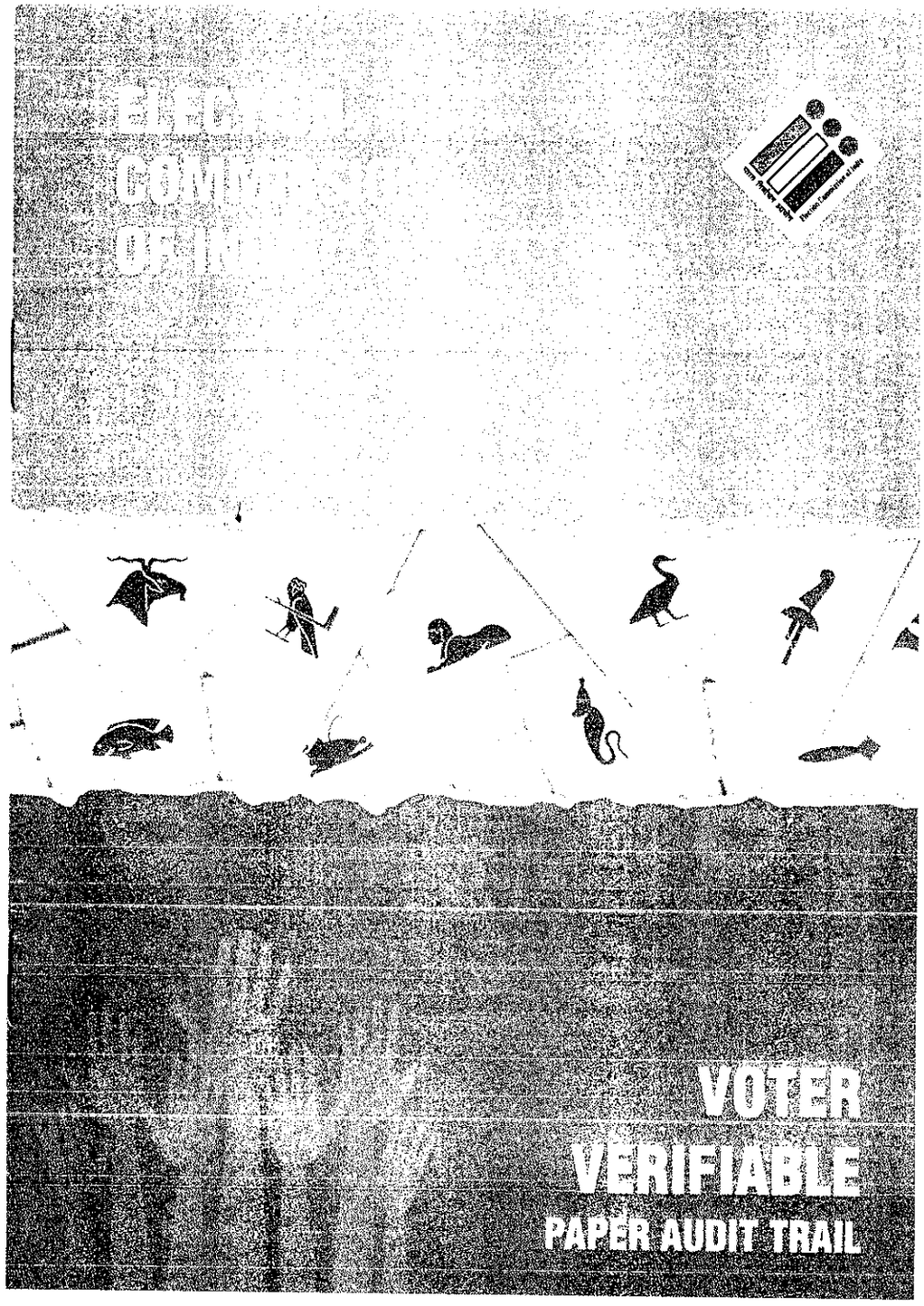
(Madhusudan Gupta)
Under Secretary

Copy to: -

1. The Chairman-cum-Managing Director, Bharat Electronics Limited, Bangalore, Karnataka.
2. The Chairman-cum-Managing Director, Electronics Corporation of India Limited, Hyderabad, Andhra Pradesh.
3. Zonal - Sr. Principal Secretary/Secretary/Under Secretary.

211

Annexure-I



212

Voter Verifiable Paper Audit Trail (VVPAT)

The VVPAT enables the voter to physically verify the vote cast on the EVM. It consists of the Printer Unit to print the voter's selection and the VSDU (VVPAT Status Display Unit) to display the error messages of VVPAT during poll.

The VVPAT prints the selection of the voter on a two inch long slip of paper called Ballot Slip. The ballot slip will display:

1. The serial number of the candidate
2. The name of the candidate
3. The corresponding symbol

The paper slip is displayed behind a transparent window for seven seconds before it is automatically cut and collected in the sealed Ballot compartment below. The VVPAT battery and paper roll are designed for printing minimum 1500 Ballot slips for each election.

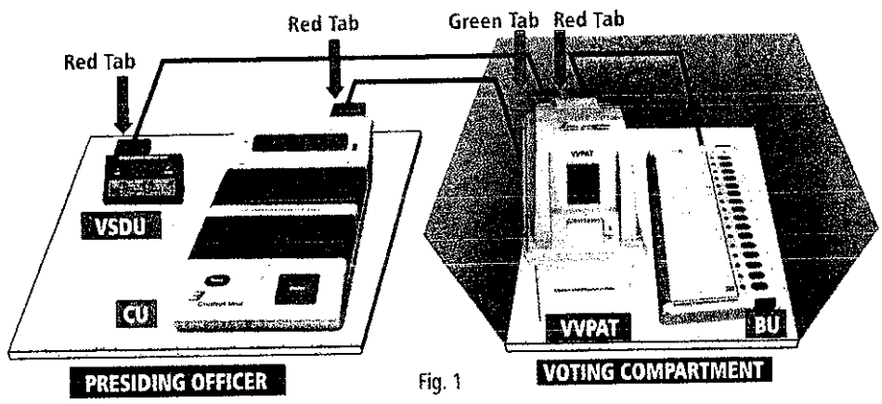


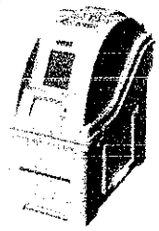
Fig. 1

213

VVPAT Components

The VVPAT system consists of following accessories.

VVPAT UNIT



The VVPAT printer prints the ballot slips and collects them in a secure sealed box. The VVPAT comes with an attached cable which is used to connect to the CU.

Connector with Red/Black latch

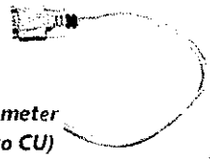
VVPAT STATUS DISPLAY UNIT (VSDU)

VVPAT Status Display Unit (VSDU) is used to indicate the VVPAT system status to the Presiding officer. The VSDU displays PRINTER ERRORS, LOW BATTERY and also the suggested action to be taken.

Connector with Blue/Green latch

INTERCONNECTING CABLE TO VSDU

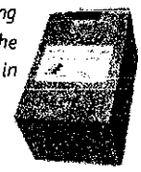
The Interconnecting Cable connects the VSDU to the VVPAT unit



VVPAT Unit with 5 meter cable (ta cannot to CU)

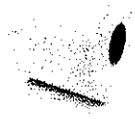
BATTERY PACK FOR VVPAT

A Battery Pack for running the VVPAT is inserted ot the appropriate compartment in the VVPAT unit



Battery pack for the VVPAT unit

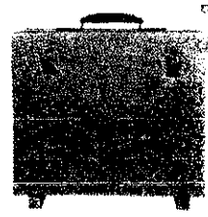
PAPER ROLL



Paper Roll far Printing af Ballats

Thermal Paper Roll

CARRY CASE



A Strang Case ta corry the whole VVPAT system in a secure way

VVPAT Carring Case

214

VVPAT Operation

Commissioning of VVPAT by Presiding Officer (PO) at Polling Station on day of poll

STEP 1

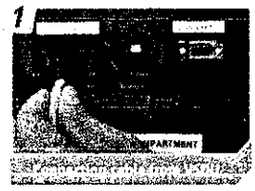
Preliminary Checks

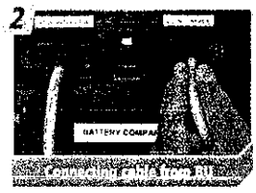
1. At the polling station, remove the VVPAT and VSDU with cables carefully from carrying case
2. Check for proper condition of the VVPAT unit, VSDU unit, connecting cables and connectors
3. Sealing should be intact for paper roll compartment.
4. Check and ensure that the ballot compartment is empty. All paper slips or ballot slips should be removed from inside the compartment.

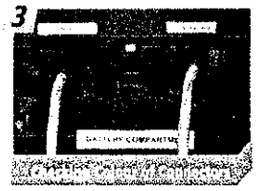
STEP 2

VVPAT setup and connection with EVM System

- Place CU & VSDU and BU & VVPAT as per (Fig.1)
- Connect the VVPAT unit with EVM system as per steps below
- Close cable compartments after connecting the cables







NOTE! All connection of EVM & VVPAT shall be done only in Power off condition.

215

STEP 3

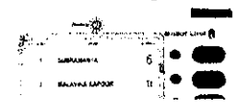
Mock Poll Procedure

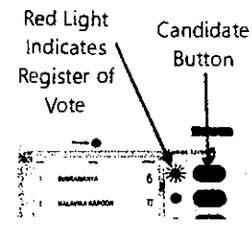
To conduct a Mock Poll at polling booth follow the below process

SETUP

1. Power ON the CU.
2. ON lamp will glow on CU and VVPAT.
3. VVPAT prints Power ON Self Test (POST) slip. The POST slip is seen through the window and cuts and falls down.
4. In case of any error in the VVPAT, corresponding error is printed in the POST slip. Incase POST slip does not cut, replace VVPAT with good one
5. Now the EVM – VVPAT system is ready for voting process.

Ballot Unit Ready for Voting

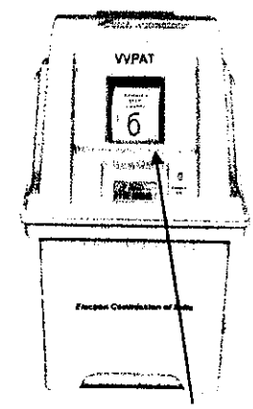




MOCK VOTING

Follow the standard mock poll procedure for CU/BU as per the EVM instruction booklet.

1. The ballot process is initiated and each polling agent is allowed to vote for the candidate of choice.
2. VVPAT prints the ballot slip containing the serial number of the candidate, name of the candidate and corresponding party symbol.
3. The printed slip is held for 7 seconds and then cut and subsequently falls into the ballot collection drop box.
4. Repeat this ballot process by voting for each contesting candidate and verify the correctness of the printed ballot slips.
5. Keep a careful manual record of the votes polled in respect of each candidate.
6. Press the CLOSE button on CU.



Voter Sees Candidate Name, Number & Symbol Printed

NOTE! At least 50 votes should be cast during mock pall

216

MOCK POLL VERIFICATION

1. Press the RESULT button on CU and manually record the result data displayed by CU.
2. Press the CLEAR button on CU and observe TOTAL should be zero in the CU.
3. Switch OFF the CU.
4. Open the ballot compartment door of the VVPAT and collect the VVPAT ballot slips.
5. Segregate these ballot slips as per the party symbol and record the result of the counted slips. Keep aside the POST slip(s).
6. Compare the VVPAT result data with the CU result data. Both must tally candidate wise.
7. After ensuring the correctness of the EVM-VVPAT system, remove the mock poll printed ballot slips and store separately.

NOTE! Fill mock poll certificate carefully and correctly

NOTE! Ensure that the ballot compartment is empty before actual poll.

STEP 4

Sealing of ballot slips compartment after mock poll

- The presiding officer should ensure that the ballot slips compartment of VVPAT is empty and does not contain any paper slips.
- The presiding Officer is required to seal the ballot slips compartment door in presence of polling agents. Sealing procedure is same as followed for the CU.

217

STEP 5

Actual Poll Procedure

After ensuring that all seals are in proper condition and that the CU, VSDU, BU and VVPAT are placed as in Fig 1, power ON the CU.

- The presiding officer should ensure that the VVPAT should be in ON condition by checking the power ON LED.
- Continue the actual polling as per the standard procedure in the case of EVM.
- Polling officer shall be monitoring the Status of VVPAT through the VSDU messages.
- If the VVPAT stops printing and shows error in the VSDU the VVPAT Unit should be replaced by another VVPAT Unit. The voter should be asked to vote again on the replaced system.

NOTE! In the event of any failure in the VVPAT the unit should be replaced with a good one.

NOTE! In case of 'LOW BATTERY' indication by VSDU the battery Should be replaced by a new one.

STEP 6

Closing of Poll Procedure

After completion of actual poll take the following steps

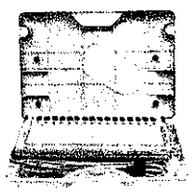
1. Press the close button on CU.
2. Switch OFF the CU.
3. Disconnect the VVPAT cable connected to CU.
4. Disconnect the VSDU cable connected to VVPAT
5. Disconnect the BU cable connected to VVPAT.

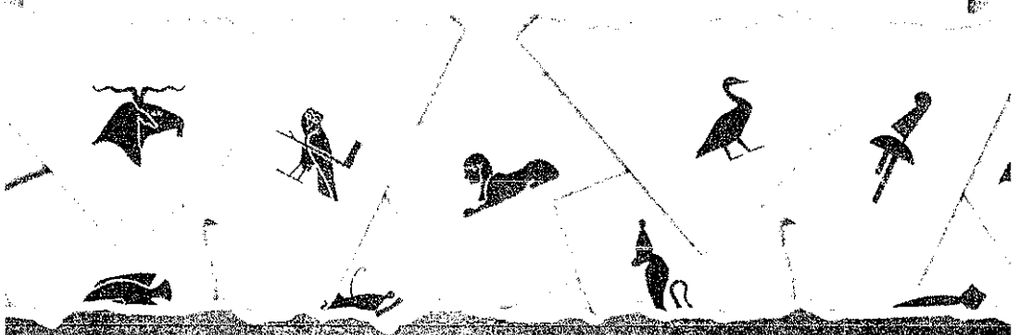
218

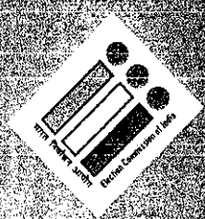
STEP 7

VVPAT Packing instructions before dispatch to strong room/counting center

1. Keep VVPAT with its cable and VSDU with its cable in the VVPAT carrying case.
2. Care should be taken while winding of VVPAT and VSDU cables.
3. Seal the carrying case in the presence of Presiding Officer and polling agents.







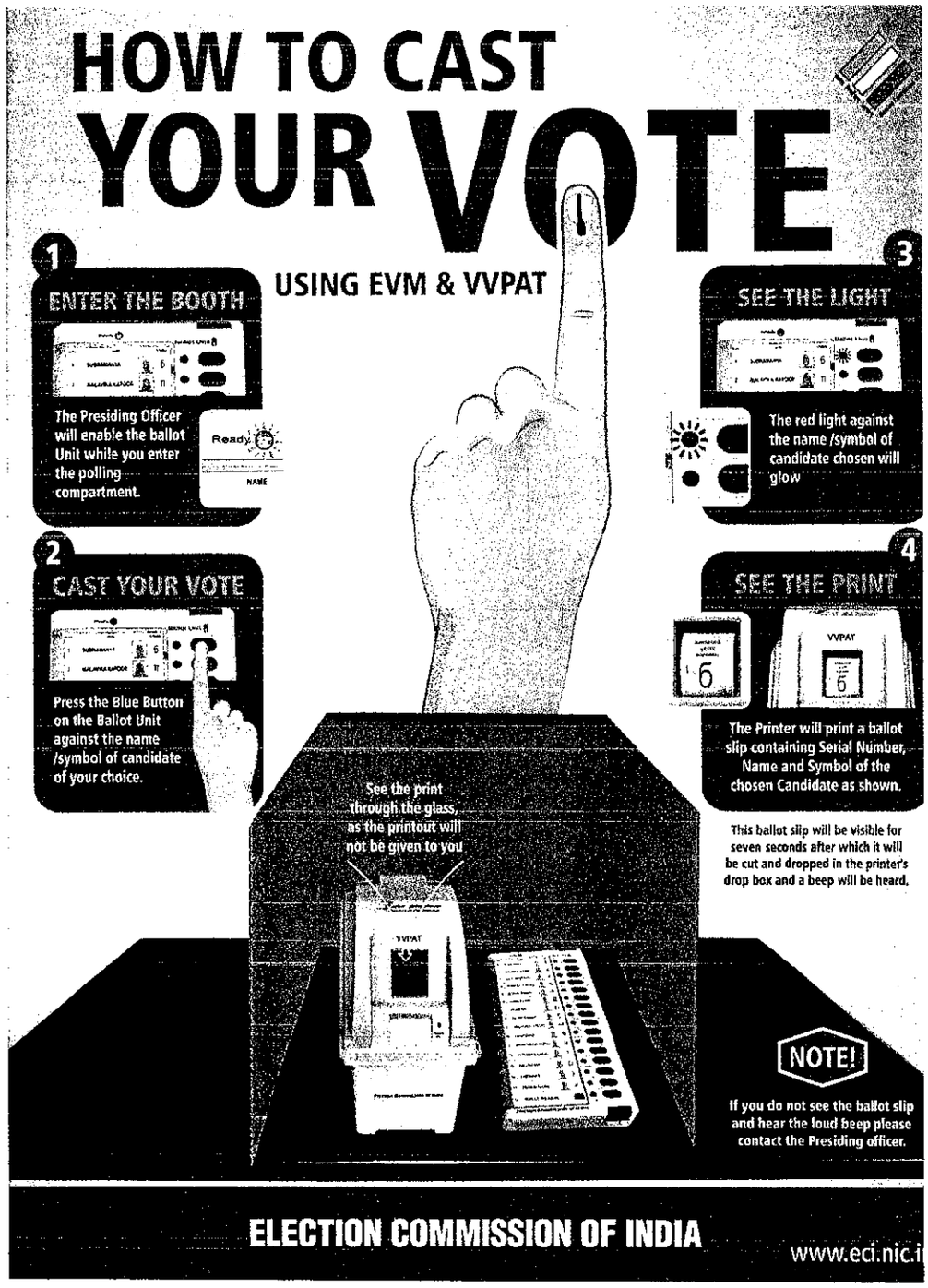
Election Commission of India

Nirvachan Sadan, Ashoka Road, New Delhi-110001

Tel: +91-11-2371 [illegible] Fax: +91-11-23711912 www.eci.nic.in

219

Annexure - II



220

Annexure-III

HANDLING OF CU-BU-VVPAT FAILURES/ERRORS DURING POLL
PREPARATION OF POLLING OFFICIALS FOR FAULT HANDLING-SUGGESTIONS

Certain contingencies may arise during the polling process which may require certain actions. These are as follows: -

a. **In case the CU or the BU does not work properly**: (i) Switch off the CU and don't switch it on again (ii) Replace the complete set of EVM and VVPAT by another set of BU, CU and VVPAT (iii) Continue the poll with the new EVM set.

b. **In case Display Panel of the CU displays "Link Error":** (i) Check that the cable connections are proper by visual inspection (don't remove and reconnect the connectors); (ii) If "Link Error" still persists, replace the complete set of EVM and VVPAT.

c. **In case the VVPAT Status Display Unit (VSDU) displays "Error Code-1Replace Battery"**: Switch off the CU and replace the Power Pack of VVPAT printer. *It should be ensured that in no case replacement of power pack is done without switching off the CU.*

d. **In case the VSDU displays "Error Code – 2 Replace Printer" and the Presiding Officer has not pressed the BU enable button:** Switch off the CU and replace the defective VVPAT unit with the new VVPAT unit. *It shall be ensured that in no case replacement of VVPAT unit is done without switching off the Control Unit.*

e. **In case the Presiding Officer has pressed BU enable Button and the Voter has pressed the Candidate Button of the Ballot Unit and complains that 'Paper Slip' has not been printed or the Paper Slip printed by the VVPAT unit has not been cut and hanging against the display window then:** (i) If the busy lamp of the CU is not glowing and no Message/Error is displayed on VSDU, the complaint should be considered as baseless and rejected; (ii) If busy lamp is glowing on the CU and no Message/Error is displayed on VSDU, the Voter shall be requested to go into the Voting Compartment once again and press the Candidate Button on BU of his choice; (iii) If busy lamp of the CU and VSDU are glowing and VSDU has no display message, please switch OFF the CU and replace the VVPAT unit. (iv) The last voter whose paper slip has not been printed by VVPAT or has not been cut should be allowed to cast his vote after the VVPAT unit has been replaced.

   Please keep in mind that the vote is not recorded in the CU electronically unless the paper slip has been printed and cut by VVPAT. If VVPAT has not printed the paper slip, or the printed paper slip has not been cut, the last voter whose paper slip has not been printed by VVPAT or has not been cut should be allowed to cast his vote after the VVPAT unit has been replaced.

f. **In case the printed paper slip has not been cut and is hanging from the paper roll:** Replace the Printer, but no effort should be made to make it fall into the drop box. It should be allowed to remain hanging, as it is not to be counted at the time of counting of the ballot slips. The details of such an occurrence should be clearly recorded in the Presiding Officers diary in the following format:

   i. The date and time of the occurrence.
   ii. The name of the voter and his serial number in part in the electoral roll who was allowed to cast his vote after replacement of VVPAT.
   iii. Whether the voter cast his vote after replacement of VVPAT or went away without casting his vote.
   iv. The Total number of votes cast before the occurrence.

g. **In case a voter alleges after recording his vote that the printed paper slip generated by the printer has shown the name or symbol of a candidate other than the one he voted for:** Action should be taken as per provisions of Rule 49MA of the Conduct of Elections (Amendment) Rules, 2013:

   (i) Obtain a declaration from the complainant in the Declaration Form (**Annexure-VI**) under his/her signature/thumb impression; (ii) Proceed to the voting compartment along with the complainant and polling agents present in the polling station at that moment; (iii) The voter shall be asked to cast a test vote in favour of any candidate and make second entry related to that elector in the Form-17A; (iv) Observe carefully whether the Printer has printed the paper slip correctly; (v) If the complaint of the elector is found genuine, the Presiding Officer shall report the facts immediately to the RO and stop further polling at the station; (vi) If the complaint of the elector is found false, make a remark to that effect against the second entry relating to that elector in Form-17A mentioning the serial number and name of the candidate for whom such test vote has been recorded and obtain the signature or thumb impression against such remark. Further make necessary entries regarding such test vote in item 5 in Part-I of Form 17-C.

221

Annexure-IV

CHECK LIST OF ADDITIONAL ITEMS OF POLLING MATERIALS TO BE PROVIDED TO THE POLLING PARTY

1.	Voter Verifiable Paper Audit Trail (VVPAT) Printer Unit	:	1 No.
2.	VVPAT Status Display Unit (VSDU)	:	1 No.
3.	Carrying Case for the VVPAT system	:	1 No.
4.	Envelope made of thick black paper (For sealing printed paper slips of Mock Poll)	:	2 Nos.
5.	Plastic Box for Black Paper Envelope Sealing	:	1 No.
6.	Pink Paper Seal for sealing Plastic Box	:	2 Nos.
7.	Form of declaration by elector under rule 49MA of the Conduct of Elections Rules	:	10 copies

222

Annexure-V

Mock Poll Certificate

This is certified that I, ... Presiding Officer at the Polling Station No.....of .....Assembly Constituency (or the .....Assembly segment under .....Parliamentary Constituency) conducted the mock poll at ..... AM today, the poll day i.e. .....(date), following scrupulously all the instructions issued by the Election Commission of India, using –

CU of Serial No. (as printed on back-side of the CU).....

BU of Serial No. (as printed on back-side of the BU).....

VVPAT Unit of Serial Number (if used).....

1. A total of ..... votes were cast for each candidate and also for NOTA.
2. It was verified that the LED light was getting lit up against the correct candidate/NOTA button, when the button was pressed and beep sound was properly heard.
3. The candidate-wise detail of votes polled during mock-poll and result displayed, is as under:

S. No.	Name of the Candidate	Number of votes cast during mock poll	Number of votes displayed in CU on checking the result	Number of Printed Paper Slips, as per counting on checking mock poll result (if VVPAT used)	Votes Cast and Result displayed & Printed Paper Slip count (if VVPAT used) Tallied with each other (YES/NO)
	NOTA				
	Total				

4. **I have cleared the memory of the EVM and also removed the printed paper slips of VVPAT after the mock poll and verified that the memory has been cleared, by pressing the Total button and seeing the Total is shown as '0'.**
5. At the time of mock poll the following polling agents representing the candidates whose names mentioned against the names of such agents were present and I have obtained their signatures.
6. Poll Start Date and Time seen on the display of CU at the time of start of actual poll..... (To be filled in case of Post-2006 EVMs).

Sl.No.Name of Polling AgentName of PartyName of candidate Signature of PollingAgent

1.
2.
3.
4.
5.

or

At the time scheduled for mock poll no polling agent was present/the agent of only one contesting candidate was present. After waiting for fifteen more minutes, I conducted the mock poll along with other polling staff at .....AM.

Signature of Micro-Observer (if posted at the polling station)

Date:

Time:

Name & Signature of the Presiding Officer

Polling Station No.....

Polling Station Name.....

223

Annexure-VI

General/Bye-Election to.....

Sl. No. and Name of Parliamentary/Assembly Constituency.....

No. and Name of Polling Station.....

FORM OF DECLARATION BY ELECTOR UNDER RULE 49MA OF CONDUCT OF ELECTIONS RULES, 1961

1. I hereby solemnly declare and affirm under sub-rule (1) of Rule 49 MA of the Conduct of Elections Rules 1961 that the paper slip generated by the printer attached to the Balloting Unit has shown the name and/or symbol of a candidate other than the candidate for whom I voted by pressing the concerned blue button against the name and symbol of the candidate of my choice on the Balloting Unit. I am ready to cast a test vote again to show that the allegation made by me is true and bonafide.

(2). I am aware of the penal provisions of Section 177 of the IPC that I shall be liable to be punished with imprisonment for a term which may extend to six months, or with fine which may extend to one thousand rupees, or with both, if the declaration given by me in para 1 above to the Presiding Officer appointed under Section 26 of the RP Act, 1951 is found to be incorrect.

Signature/Thumb impression of the Elector

Name of the Elector.....

Father/Mother/Husband's Name.....

Part No. of elector roll.....

Sl. No. of elector in that Part.....

Sl. No. in Register of Voters (Form 17A).....

Dated.....

Certified that the above declaration was made and subscribed by the elector above named before me.

Signature of the Presiding Officer

.....

Dated.....

224

Annexure-VII

ANNEXURE TO PART-II OF FORM 17-C

RESULT OF PRINTED PAPER COUNT

Polling Station No. _____ **Unique ID of VVPAT :** _____

Sl.No. of candidate	Name of candidate	Number of votes as per count of Printed Paper Slip of VVPAT	Number of test votes to be deducted as per item 5 of Part I	Number of valid votes. (3-4)
(1)	(2)	(3)	(4)	(5)
1.				
2.				
3.				
4.				
5.				
6.				
Total				

Whether the total number of votes shown above tallies with the total number of votes shown against item 6 of Part I or any discrepancy noticed between the two totals.(YES/NO)

Place.....
Date.....

Signature of Counting Supervisor

Name of candidate/election agent/counting agent Full signature

1.

2.

3.

4.

5.

6.

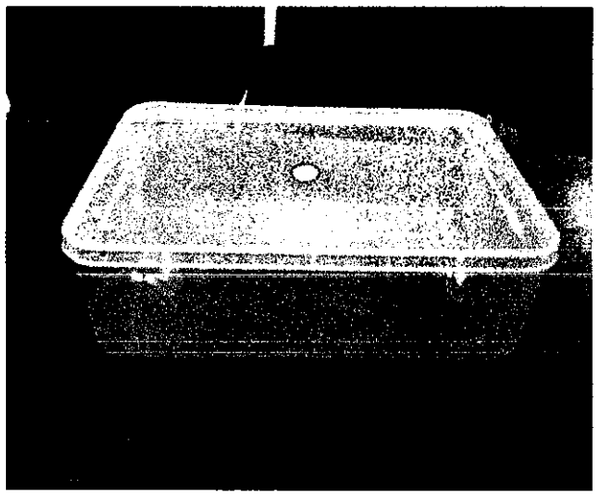
7.

Place.....
Date.....

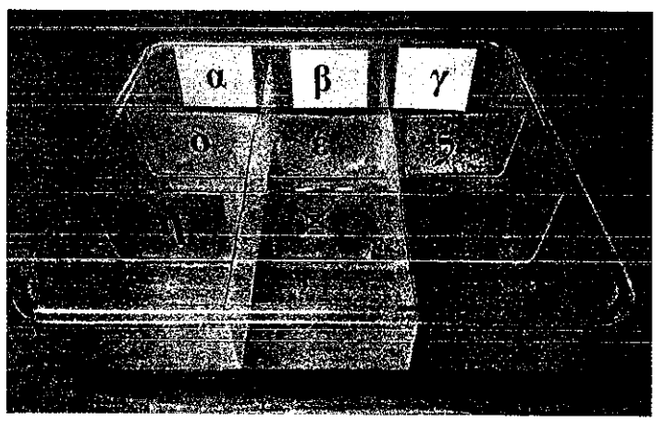
Signature of Returning Officer

225

Annexure-VIII



Sample Container -14 inch X 10 inch X 5 inch (length X breadth X height)



Sample Pigeonholes (Size of each compartment 6 inch X 4 inch X 4 inch)

Tlc

226
ANNEX- C/21

WP(C) 983/2017

ITEM NO.37 COURT NO.1 SECTION X

S U P R E M E C O U R T O F I N D I A
RECORD OF PROCEEDINGS

Writ Petition(s)(Civil) No(s). 983/2017

PRAKASH JOSHI Petitioner(s)

VERSUS

ELECTION COMMISSION OF INDIA Respondent(s)

(FOR ADMISSION)

Date : 30-10-2017 This matter was called on for hearing today.

CORAM :
HON'BLE THE CHIEF JUSTICE
HON'BLE MR. JUSTICE A.M. KHANWILKAR
HON'BLE DR. JUSTICE D.Y. CHANDRACHUD

For Petitioner(s)
Mr. Kapil Sibal, Sr. Adv.
Mr. Vivek Tankha, Sr. Adv.
Mr. Aljo K. Joseph, AOR
Ms. Shelna K., Adv.
Mr. Varun Chopra, Adv.

For Respondent(s)
Mr. Amit Sharma, Adv.
Mr. Dipesh Sinha, Adv.
Ms. Ayiala Imti, Adv.

Mr. K.K. Venugopal, AG
Ms. Madhavi Divan, Adv.
Ms. Nidhi Khanna, Adv.
Mr. Ayush Puri, Adv.

Mr. Harish V. Shankar
Ms. Nisha Mohandas

UPON hearing the counsel the Court made the following
O R D E R

Validity unknown
Digitally signed by CHETAN KUMAR
Date: 2017.10.30 18:51:31 IST
Reason:

Mr. K.K. Venugopal, learned Attorney General submits that as far as Prayer (a) is concerned, the Election Commission of India has already implemented

the same. The situation is accorded to by Mr. Amit Sharma, learned counsel for the Election Commission of India. As far as Prayer (b) is concerned, it is urged by Mr. K.K. Venugopal that guidelines have already been brought by the Election Commission of India. The same is disputed by Mr. Kapil Sibal and Mr. Vivek Tankha, learned senior counsel appearing for the petitioner. We leave it to the discretion of the Election Commission of India, as we are not inclined to enter into the said arena. As far as Prayer (c) is concerned, it is submitted by Mr. K.K. Venugopal that the Election Commission of India has issued appropriate guidelines, and this Court may say that no officer/official against whom disciplinary proceedings have been initiated shall be posted in any key positions.

Having heard Mr. K.K. Venugopal, we direct that the Election Commission of India shall not post any officer/official against whom the disciplinary proceedings has been initiated in any key position in any district.

As far as prayer (d) concerning installation of CCTV cameras inside the polling booth to watch the mobility of persons inside the polling booth and display of such videograph alongwith the number of votes poll outside the polling booth on a display board is concerned, we are of the considered opinion that the same is not permissible and accordingly, the said prayer stands rejected.

The writ petition is accordingly disposed of.

(Deepak Guglani)
Court Master

(H.S. Parasher)
Assistant Registrar

T/C

228

ANNEX- C/22

ELECTION COMMISSION OF INDIA

NIRVACHAN SADAN, ASHOKA ROAD, NEW DELHI-110001

No. 51/8/16/9/2017-EVM(P&L)

Dated: 9th November, 2017

CIRCULAR

SUBJECT: First Level Checking (FLC) of EVMs and VVPATs: Deployment of Special Team of ECI Officials for Quality Checks.

1. INTRODUCTION:

First Level Checking (FLC) of EVMs and VVPATs is done, by the authorised engineers of M/s Bharat Electronics Limited (BEL) and M/s Electronics Corporation of India Limited (ECIL), as the case may be, before every Bye-election and General Election to State Legislative Assembly and House of the People (Lok Sabha). At District Election Officer level FLC is to be done sufficiently in advance so that all checks are carried out without any undue haste in the presence of representatives of National and State Recognised Political Parties. FLC of EVMs and VVPATs shall be completed, as far as possible, well before the issue of notification calling the election.

As per the extent instructions of Commission, FLC of EVMs (Control Units and Balloting Units) and VVPATs shall commence: -

(a) within one month of occurrence of vacancy in case of bye-election.

(b) at least P-120 days in case of General Election to State Legislative Assembly.

(c) at least P-180 days in case of General Election to Lok Sabha.

2. PURPOSE OF FLC: The purpose of FLC is to ensure the robustness and fitness of EVMs and VVPATs to be used in elections, so that only fully functional and defect free FLC OK EVMs and VVPATs are used in elections. FLC rejected EVMs and VVPATs are sent to BEL/ECIL factory, as the case may be, within 7 days of completion of FLC process. The close and continuous involvement/participation of the representatives of National and State Recognised Political Parties in FLC process serves to enhancing transparency and credibility of the EVMs and VVPATs usage. FLC process includes:

2.1 Detailed Functional Checking:

(a) Visual Inspection of EVM and VVPAT

(b) Full Functionality tests

2.2 Comprehensive Confidence Building:

(a) Opening of CU for originality of components

(b) Mock Poll involving the representatives of political parties

229

3. INSTRUCTIONS AND SOP ON FLC: Attached as Annexure I.

4. QUALITY CHECK BY TEAM OF ECI OFFICIALs:

It has been decided by the Commission that ECI Officials will be sent for surprise FLC Quality Checks during the 1st week of every FLC process in all the future elections.

5. REPORTING FORMAT FOR ECI OFFICIALs:

Attached as Annexure II.

6. DOs and DONT's for the ECI OFFICIALS:

I. **DO's**

i) Draw up your tour programs sufficiently in advance and intimate to the Chief Electoral Officer and the concerned District Election Officers of the districts concerned.

ii) Note carefully the numbers of visits, duration of visits and the period of visits.

iii) Familiarize yourself with the use of Electronic Voting Machines (EVMs) and Voter Verifiable Paper Audit Trial (VVPAT).

iv) Submit a report to the Commission within 24 hours of your return to the headquarters. In addition, also send spot report (s) from time to time as considered necessary.

v) Any shortcoming that merits immediate remedial action be reported to the Commission without any loss of time. Such information should not be deferred till the regular reports are submitted.

vi) Maintain proper conduct in the districts as ECI Observers are keenly observed.

vii) Meet the DEO and ask for the report of the FLC

viii) Analyse the report submitted by the DEO

II. **DONT'S**

i) Do not travel to the designated district(s) with your families.

ii) Do not give any statement to the Press or Media.

iii) Do not make any unreasonable demands regarding accommodation, vehicles, security etc.

iv) Complete your duty as per direction of the Commission.

Yours Faithfully,

TIC

(Madhusudan Gupta)
Under Secretary

230
ANNEX- C/23

ITEM NO.33 COURT NO.1 SECTION PIL-W

S U P R E M E C O U R T O F I N D I A
RECORD OF PROCEEDINGS

Writ Petition(s)(Civil) No(s).1012/2017

MANUBHAI CHAVADA Petitioner(s)

VERSUS

ELECTION COMMISSION OF INDIA & ORS. Respondent(s)

(FOR ADMISSION)

Date : 20-11-2017 This petition was called on for hearing today.

CORAM :
HON'BLE THE CHIEF JUSTICE
HON'BLE MR. JUSTICE A.M. KHANWILKAR
HON'BLE DR. JUSTICE D.Y. CHANDRACHUD

For Petitioner(s) Mr.Devadatt Kamat, Adv.
Mr.K.R.Koshti, Adv.
Mr.Aditya Bhat, Adv.
Mr.Rajesh Inamdar, Adv.
Mr.Javedur Rahman, Adv.
Ms.Anjana Sharma, Adv.
Mr. Gautam Talukdar, AOR

For Respondent(s) Mr.Amit Sharma, Adv.
Mr.Dipesh Sinha, Adv.
Ms.Ayiala Imiti, Adv.

UPON hearing the counsel the Court made the following
O R D E R

Heard learned counsel for the petitioner.

The Writ Petition is dismissed.

(Satish Kumar Yadav)
AR-cum-PS

(H.S.Parasher)
Assistant Registrar

T/C

Validity unknown
Digitally signed by SATISH KUMAR YADAV
Date: 2017.11.21 14:33:45 IST
Reason:

231

ANNEX-C/24

ELECTION COMMISSION OF INDIA

Nirvachan Sadan, Ashoka Road, New Delhi-110001

No.51/8/VVPAT/2017-EMS Dated: 5th December, 2017

To

The Chief Electoral Officers of
All States & Union Territories.

Subject: Revised Instructions on use of Electronic Voting Machine (EVM) with Voter Verifiable Paper Audit trail (VVPAT) system – Regarding.

Sir/Madam,

I am directed to say that the para 11 of the Commission's existing instruction of even number dated 16th October, 2017 has been deleted and paras 13 (B) (iii) and 13 (C) (iii) (e) has been slightly modified. The revised instructions after incorporating the necessary changes alongwith the table of contents is enclosed herewith, for necessary action.

Yours faithfully,

(Madhusudan Gupta)
Under Secretary

Copy to: -

1. The Chairman-cum-Managing Director, Bharat Electronics Limited, Bangalore, Karnataka.

2. The Chairman-cum-Managing Director, Electronics Corporation of India Limited, Hyderabad, Andhra Pradesh.

232

No.51/8/VVPAT/2017-EMS **Dated: 5th December, 2017**

Instructions on use of Electronic Voting Machine (EVM) with Voter Verifiable Paper Audit Trail (VVPAT) system.

CONTENTS

1. POLL PREPARATIONS WITH EVM & VVPAT 2

1.1 TRAINING OF MASTER TRAINERS, POLLING PERSONNEL, COUNTING PERSONNEL AND STORAGE PERSONNEL: 2

1.2 VVPAT DEMONSTRATION 2

1.3 PREPARATION OF EVMS AND VVPAT SYSTEM FOR POLL (CANDIDATE SETTING) 3

1.4 CONDUCT OF MOCK POLL AND SEALING OF EVMs AND VVPATs IN THE POLLING STATIONS BEFORE START OF ACTUAL POLL 3

1.5 ROLE OF POLLING PARTIES: 4

2. COMPLAINT & CONTINGENCY ISSUES 4

2.1 WRONG PRINTING COMPLAINT 4

2.2 HANDLING CONTINGENCIES DURING POLL: 5

3. COUNTING AND STORAGE OF VVPAT PAPER SLIPS 6

3.1 APPLICATION FOR VVPAT PAPER SLIPS COUNTING 6

3.2 ARRANGEMENTS FOR COUNTING OF VVPAT PAPER SLIPS: 6

3.3 PROCEDURE TO COUNT VVPAT PAPER SLIPS: 6

3.4 STORAGE of EVMs & VVPATs after counting of votes: 8

3.5 STORAGE OF VVPAT PAPER SLIPS AFTER EXPIRY OF PERIOD OF FILING OF ELECTION PETITIONS: 8

Annexure- I 11

Annexure- II 19

Annexure-III 20

Annexure-Iv 22

Annexure-V 23

Annexure-VI 25

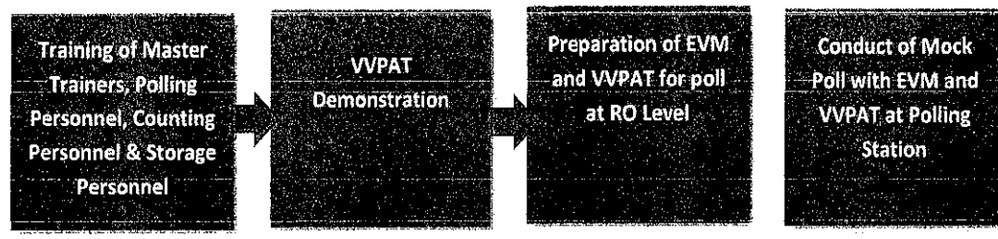
Annexure-VII 26

Annexure-VIII 27

Annexure-IX 28

PRE-POLL

1. POLL PREPARATIONS WITH EVM & VVPAT



1.1 TRAINING OF MASTER TRAINERS, POLLING PERSONNEL, COUNTING PERSONNEL AND STORAGE PERSONNEL:

- Presiding Officers, Polling Officers, Returning Officer, Assistant Returning Officers, Sector Officers and Counting Personnel must be given hands-on-training related to their role/duties on use of EVMs with VVPATs.
- Every official should get an opportunity to operate the EVM with VVPAT system and understand the process of recording the vote using VVPAT.
- Separate training should be given on counting of printed paper slips from the VVPAT system and tallying the count of VVPAT paper slips with the count of the Control Unit.
- A copy of VVPAT brochure **(Annexure-I)** should be given to all officers during training and be available at polling station on poll day.
- A training session may be incorporated in the training module of State Public Administration Institutions, on operation & use of VVPATs.

1.2 VVPAT DEMONSTRATION

- A demonstration of VVPAT system should be organized by the District Election Officers (DEOs) for political parties, Returning Officers and electors at suitable locations.
- Further, the Returning Officers (ROs) shall arrange demonstration of VVPAT system for candidates and electors at suitable locations in the constituency.
- The poster "How to Cast Your Vote Using EVMs and VVPATs" **(Annexure-II)** on method of voting with VVPAT should be pasted at prominent places of the constituencies and at places in each polling station in a manner that voters waiting in the queue are able to read the instructions.
- The DEO and RO should also organize programmes for awareness about use of EVMs with VVPAT on print media and local cable-network etc. A short film on How to Cast Your Vote using VVPAT with EVM shall be made in regional language for this purpose.

NOTE: Only FLC-ok EVMs & VVPATs with dummy symbols shall be used for training, awareness and demonstration.

234

1.3 PREPARATION OF EVMS AND VVPAT SYSTEM FOR POLL (CANDIDATE SETTING)

EVMs shall be prepared according to the instructions of the Commission on the preparation of EVMs for polls. The VVPAT system shall be prepared for poll in the following manner as mentioned in Rule 49B [4(c) (i) – (iii)] of the Conduct of Elections Rules, 1961:

- The VVPAT consists of VVPAT Status Display Unit (VSDU) and VVPAT Printer unit. A new battery power pack shall be connected to the VVPAT unit and shut the door of the battery compartment, but no sealing is required on battery compartment as the power pack can be replaced if low battery status is indicated on VSDU during the poll.
- A fresh paper roll shall be installed in the printer unit as per the procedure mentioned in the user manual for VVPAT provided by the manufacturer (**Annexure IX**)
- Serial numbers, names of candidates and symbols allotted shall be loaded in VVPAT with the help of engineers. A test printout shall be checked with the ballot paper in Balloting Unit (BU).
- Then one vote to each candidate shall be given to check that the VVPAT is printing the paper slips accurately.
- Thereafter, switch off the CU and seal the latches of paper roll compartment using thread seals and address tags. The candidates/their agents shall be allowed to affix their signatures with party abbreviations on Address Tags.
- The units should be randomly allocated to polling stations and kept in the respective carrying case.

POLL DAY

1.4 CONDUCT OF MOCK POLL AND SEALING OF EVMs AND VVPATs IN THE POLLING STATIONS BEFORE START OF ACTUAL POLL

- During the mock poll, BU and VVPAT should be placed in the Voting Compartment, where a Polling Officer should be present along with polling agents to observe. The CU and VSDU should be placed on the table of the Presiding Officer/Polling Officer. This Polling Officer will keep a record of the votes cast.
- After the mock poll. Presiding Officer will ascertain the result in the CU, count the VVPAT paper slips in the presence of the polling agents and confirm that the results tally for each candidate.
- All mock poll data in CU and VVPAT paper slips from VVPAT must be removed by the Presiding Officer and the empty drop box verified by the Polling Agents.
- The mock poll VVPAT paper slips, should be stamped on their back side with rubber stamp having inscription **"MOCK POLL SLIP", thereafter these** mock poll VVPAT paper slips shall be kept in an envelope made of thick black paper and sealed with the seal of the Presiding Officer. The sample image of the said stamp is as under:

(The dimensions of the stamp to be used for the purpose should be 3cms X 1.5 cms)

- The Presiding Officer and polling agents must put their signatures on the envelope. The number and name of the polling station, number and name of Assembly Constituency, date of poll and the words "***VVPAT paper slips of Mock Poll***" shall be written on the envelope.
- This envelope must be kept in the special plastic box for mock poll and sealed with a pink paper seal placed all around in such a manner that opening of the box will require breaking of the seal.
- The number and name of the polling station, number and name of Assembly Constituency and the date of poll shall be written on the plastic box.
- The Presiding Officer and Polling Agents must put their signatures on the pink paper seal and keep the box along with other documents relating to elections. Thereafter, Presiding Officer will sign the Mock Poll Certificate (**Annexure-V**) and seal the CU.
- The drop box of VVPAT should be sealed with an address tag before the actual poll starts.

1.5 ROLE OF POLLING PARTIES:

- One extra polling official must be provided to handle the VVPAT unit while constituting polling parties. This polling official should handle VVPAT unit and also watch VSDU continuously during poll process.
- The official shall immediately inform the Presiding Officer of any error noticed in VSDU. At the time of dispersal of polling parties, two copies of the Trouble shooting instructions **(Annexure-III)** and List of additional items of polling materials **(Annexure-IV)** shall be handed over to the Presiding Officers.
- Adequate numbers of black paper envelopes and plastic boxes may also be procured for storing the paper ballot slips from the VVPAT.

NOTE: The polling parties shall strictly be instructed not to test VVPAT at the time of dispersal and before mock poll at polling station under any circumstance, as VVPATs issued to them are already checked & tested.

2. COMPLAINT & CONTINGENCY ISSUES

2.1 WRONG PRINTING COMPLAINT

If any voter alleges about the wrong printing of particulars of a candidate and/or symbol of that candidate on VVPAT paper slip printed by the printer on pressing of concerned blue (candidate) button on the Balloting Unit to which the printer is connected, the Presiding Officer of the polling station should provide him a 'Form of Declaration' **(Annexure-VI)** to lodge a complaint and follow the procedure prescribed under rule 49MA, which reads as under:

"49MA. Procedure in case of complaint about particulars printed on paper slip-

- Where printer for paper trail is used, if an elector after having recorded his vote under rule 49M alleges that the paper slip generated by the printer has shown the name or symbol of a candidate other than the one he voted for, the presiding officer shall obtain a written declaration from the elector as to the allegation, after warning the elector about the consequence of making a false declaration.

- If the elector gives the written declaration referred to in sub-rule (1), the presiding officer shall make a second entry related to that elector in Form 17A, and permit the elector to record a test vote in the voting machine in his presence and in the presence of the candidates or polling agents who may be present in the polling station, and observe the paper slip generated by the printer.
- If the allegation is found true, the presiding officer shall report the facts immediately to the returning officer, stop further recording of votes in that voting machine and act as per the direction that may be given by the Returning Officer.
- If, however, the allegation is found to be false and the paper slip so generated under sub-rule (1) matches with the test vote recorded by the elector under sub-rule (2), then, the presiding officer shall-
    - make a remark to that effect against the second entry relating to that elector in Form 17A mentioning the serial number and name of the candidate for whom such test vote has been recorded;
    - Obtain the signature or thumb impression of that elector against such remarks; and make necessary entries regarding such test vote in item 5 in Part I of Form 17C.".

2.2 HANDLING CONTINGENCIES DURING POLL:

Certain contingencies may arise during the polling process, which may require certain actions. These are as follows: -

- **In case the CU or the BU does not work properly, replacement of the whole EVM including CU, BU and VVPAT is required. No mock poll is required to be taken.**
- In case the VSDU is showing "Low Battery", the power pack battery of VVPAT should be replaced. It should be ensured that before taking out the power pack battery of VVPAT, control unit must be switched OFF and after installing new power pack battery in VVPAT, control unit should be switched ON. Control Unit should not be switched ON without installing power pack in VVPAT.
- In case there is any other error, like "Paper Low" error, the VVPAT will stop printing and the error shall be displayed on the VSDU. **In such case the VVPAT unit is to be replaced. No mock-poll is required to be taken.** Therefore, if VVPAT has not printed the paper slip, or the printed paper slip has not been cut, the last voter whose paper slip has not been printed by VVPAT or has not been cut should be allowed to cast his vote after the VVPAT has been replaced. In case the printed paper slip has not been cut and is hanging from the paper roll, no effort should be made to make it fall into the drop box. It should be allowed to remain hanging as it means that the vote has not been recorded in Control Unit and as it is not to be counted at the time of counting of the printed-paper slips. The details of such an occurrence should be clearly recorded in the Presiding Officer's dairy in the following format: -
    - The date and time of the occurrence.
    - The name of the voter and his serial number in the part in the electoral roll, who was allowed to cast his vote after replacement of VVPAT.
    - Whether the voter cast his vote after replacement of VVPAT or went away without casting his vote.
    - The Total number of votes cast before the occurrence.

In case of contingencies, the Presiding Officers may also refer to **Annexure-III** for solutions.

237

3. COUNTING AND STORAGE OF VVPAT PAPER SLIPS

3.1 APPLICATION FOR VVPAT PAPER SLIPS COUNTING

After announcement of result sheet entries, any candidate, their election agent or their counting agents may apply in writing to the RO to count the printed VVPAT paper slips in any or all polling stations. If such application is made, the RO shall pass a speaking order on whether the VVPAT paper slips should be counted. If the RO decides to allow the counting of the VVPAT paper slips of any or all polling stations, such decision of the RO must be recorded in writing along with the reasons thereof. The RO shall give due consideration to the following:

- Whether the total number of votes polled in that polling station is greater or lesser than the margin of votes between winning candidate and candidate making the application
- Whether EVM had a problem and was replaced at that polling station during poll
- Whether there was any complaint about VVPAT not printing or complaints by any voter under Rule 49MA in that polling station during the poll.

3.2 ARRANGEMENTS FOR COUNTING OF VVPAT PAPER SLIPS:

- One of the Counting Tables inside the Counting Hall shall be earmarked by the Returning Officer as VVPAT Counting Booth (VCB) for Counting of VVPAT Paper Slips.
- VCB shall be enclosed in a wire-mesh just like a Bank Cashier Cabin, so that no VVPAT paper slip can be accessed by any unauthorised person.

3.3 PROCEDURE TO COUNT VVPAT PAPER SLIPS:

If the RO decides to count the printed paper slips of any polling station(s) on an appeal for recounting of any polling station(s), the following procedures shall be strictly followed:

Step-1:

- For keeping VVPAT Paper Slips taken out from the Drop Box of the VVPAT, a sufficiently sized container with lid, of dimensions 14 inch X 10 inch X 5 inch (length x breadth x height), to easily accommodate around 1400 Printed Paper Slips, shall be kept on the table of VCB. This Container should be made of sturdy transparent material like plastic etc. Sample images of the Container are available in Annexure- VIII
- For keeping VVPAT paper slips of the respective candidates, a Pigeonhole Framework shall be prepared in advance according to the number of candidates including NOTA, *with one additional pigeonhole for keeping self-test slips of the VVPAT,* and shall be kept on the table of VCB.
    - The minimum number of Pigeonholes in the Framework must be equal to the number of candidates plus 2 (two).
    - The size of each compartment (Pigeonhole) must be atleast 6 inch X 4 inch X 4 inch (length x breadth x height).
    - The pigeonhole structure should be made of sturdy transparent material like plastic etc, having a fixed base, to prevent any VVPAT paper slip from slipping underneath.
    - The symbol of each contesting candidate as per the Ballot Paper should be affixed on the wall of the pigeonhole allotted to the particular candidates. The symbol should be printed

in black and white on a plain paper of minimum size 4inch X 3 inch. Sample images of the Pigeonhole Framework are placed in Annexure-VIII.

- At least 100 Rubber bands for making bundles of 25 VVPAT paper slips.

Step-2:

- The VVPAT unit(s) of the respective polling station(s) should be brought to the VCB one by one, as the case may be.
- In case a VVPAT unit was replaced during poll at that polling station, all the VVPAT units used at that polling station should be brought to the VCB.

Step-3:

- The printed paper slips shall be taken out from all the VVPATs used at the polling station, before beginning the counting of VVPAT paper slips for that polling station.
- Before taking out the VVPAT Paper Slips from the drop box, the address tag(s) of the drop box shall be crosschecked to ascertain that the VVPAT pertains to the respective polling station.
- The VVPAT Paper Slips taken out from the Drop Box of the VVPAT shall be first kept in the container as per specification at step-1 (i).
- After taking out the VVPAT paper slips from Drop Box, the Counting Supervisor shall ensure that no VVPAT paper slip is left inside the VVPAT drop box and show the empty drop box to the counting agents.
- In case a VVPAT unit was replaced, it may so happen that an uncut fully or partially VVPAT paper slip is hanging and has not got cut and dropped in the drop box and still connected to the paper roll. This uncut VVPAT paper slip should not be torn and should not be counted because the vote is not recorded electronically in the CU unless the VVPAT paper slip is cut. In such an event, the last voter whose VVPAT paper slip was not cut would have been given an opportunity to cast his vote after replacement of VVPAT and the VVPAT paper slip of the vote cast by him shall be in the next VVPAT used in that polling station.
- The drop box of the VVPAT will also have VVPAT slips of self-test report. These are easily identified, as they do not have either the name or the symbol of any candidate. These self-test report slips are to be preserved along with the VVPAT paper slips as part of the record but they are not to be counted.

Step-4:

- The VVPAT paper slips should be segregated one-by-one and put in respective pigeon holes after showing each slip to the Counting Agents. The paper slips bearing self-tests report shall also be segregated and put in a separate pigeonhole provided for the purpose.
- Bundles of 25VVPAT paper slips of respective candidates shall be prepared for counting purpose.
- VVPAT Paper Slips shall then be counted by the counting staff.
- Result of the VVPAT paper slips count shall be prepared in the format as per **Annexure-VII** and attached to Part-II of Form 17-C.
- The result of the count of VVPAT paper slips shall be announced loudly in the counting hall and shown to the counting agents.

- As per Rule 56D(b) of the Conduct of Elections Rules 1961, if there is any discrepancy between EVM count and paper slip count, the paper slip count shall prevail. Hence, if there is discrepancy between the count of votes displayed on the Control Unit and the count of printed-paper slips in respect of that Polling Station, the result sheet will be amended as per the printed-paper slips count.

Step-5:

- After completion of counting of VVPAT paper slips, the bundles of all the VVPAT Paper Slips shall be kept back in the Drop Box of the respective VVPAT and door of the Drop Box shall be sealed using address tags.
- The candidate(s)/their agents may also be allowed to affix their signature with party abbreviation on the Address Tags.

3.4 STORAGE OF EVMs & VVPATs AFTER COUNTING OF VOTES:

After completion of counting of votes, EVMs and VVPATs containing printed paper slips in its Drop box, shall be kept in the same strong room without removing Power Packs of Control Units and Power Packs and Paper Rolls of VVPATs.

- The Strong room shall not be opened till completion of Election Petition (EP) period i.e. till EP list is received from respective High Court.
- After completion of Election Petition Period, the exact EP position should be ascertained from High Court concerned before opening the strong room.

3.5 STORAGE OF VVPAT PAPER SLIPS AFTER EXPIRY OF PERIOD OF FILING OF ELECTION PETITIONS:

After expiry of the period of filing of Election Petitions (EPs) i.e. 45-days from the date of declaration of result, District Election Officers shall ascertain the position of EP from the concerned High Court. After obtaining the status of EP from the High Court concerned, the following action shall be taken:

- Every VVPAT used in an election and kept in the custody of the District Election Officer shall be kept untouched, under the standard protocol of security, till confirmation of Election petition position from the High Court concerned after the completion of the period for filing Election Petition i.e. 45 days from the date of declaration of the result.
- In the case of elections, where no election petition has been filed or no other court cases are pending, after the aforesaid period, the VVPATs shall be available for use in any future election or any other purpose like training, awareness, movement, physical verification etc.
- Before moving any VVPAT, printed paper slips shall be taken out from Drop-box of the VVPATs as per procedure mentioned below:
    - A Notice informing the opening of Strong Room having VVPATs shall be given to the representatives of all political parties in writing at least 48 hours in advance, requesting them to remain present at the time of opening of strong room.
    - The strong room shall be opened in the presence of the District Election Officer and representatives of Political Parties.
    - Remove the Power Packs of Control Units and Power Packs and Paper Rolls of VVPATs.

- The VVPAT paper slips shall be taken out from the Drop Box of VVPAT and kept in a paper envelope made of thick black paper, sealed using red wax under the seal of DEO. Name of election, number and name of assembly constituency, particulars of polling station, unique serial number of the VVPAT unit, date of poll and date of counting shall be mentioned on the envelope containing printed paper slips.
- The envelopes containing VVPAT paper slips shall be kept with all other statutory documents relating to that election till the statutory time limit.
- Thorough checking of officials deputed for the removal of VVPAT paper slips and their sealing must be ensured. All pockets need to be emptied before entering the Sealing Room/Strong Room and thorough checking of officials leaving the sealing room should be done in addition to DFMD/Metal Detector Checking.
- Once the VVPAT paper slips have been taken out, the VVPATs must be kept in their separate designated warehouse. VVPAT should not be kept in the same warehouse where EVMs are stored.
- To ensure there is no deliberate attempt to remove any paper-slips from sealing room/strong room, the entire process should be conducted under high quality CCTV recording/videography.

- In case of any election **where election petition has been filed**, the following action shall be taken:-
  - If the EVMs or Counting of Votes are the subject of the election petition, the EVMs and VVPATs used at all Polling Stations in the constituency concerned shall continue to be kept in the safe custody of the District Election Officer, till such time the Election Petition is finally disposed of by the Courts.
  - If the EVMs or counting of votes are not the subject of the election petition, an application may be moved to the concerned Court for allowing the EVMs& VVPATs concerned to be taken out of the strong room for any future election or any other purpose like movement, physical verification etc.
  - In case VVPATs not involved in any Election Petition/Court Case are stored with the VVPATs involved in Election Petition/Court Case, the following procedure shall be followed for segregating the VVPATs not involved in any election petition/court case from the VVPATs involved in EP/Court case:-
    - A Notice informing the opening of Strong Room having VVPATs involved in EP/Court Case as well as non-EP VVPATs, shall be given to the petitioners/respondents of the EP/Court Case and the representatives of all political parties in writing at least 72 hours in advance, requesting them to remain present at the time of opening of strong room.
    - The strong room shall be opened in the presence of the District Election Officer, Petitioners/respondents of the EP/Court case and representatives of Political Parties.
    - The VVPATs not involved in any EP/Court Case shall be segregated from the VVPATs involved in EP/Court Case for taking out of the strong room. A list of VVPATs being so taken out from the strong room shall be prepared.
    - The VVPATs, which are not involved in any EP/Court Case, should only be taken out of the Strong room.

- The procedure mentioned above shall be followed for taking-out power packs, paper rolls and the printed paper slips from all such VVPATs, following which the VVPATs are available for any subsequent deployment/use.
- The entire process shall be videographed and videography must be preserved for record.

242

ANNEXURE- I

243

Voter Verifiable Paper Audit Trail (VVPAT)

The VVPAT enables the voter to physically verify the vote cast on the EVM. It consists of the Printer Unit to print the voter's selection and the VSDU (VVPAT Status Display Unit) to display the error messages of VVPAT during poll.

The VVPAT prints the selection of the voter on a 10cm X 5.6 cm long slip of paper called Ballot Slip. The ballot slip will display:

1. The serial number of the candidate
2. The name of the candidate
3. The corresponding symbol

The paper slip is displayed behind a transparent window for seven seconds before it is automatically cut and collected in the sealed Ballot compartment below. The VVPAT battery and paper roll are designed for printing minimum 1500 Ballot slips for each election.

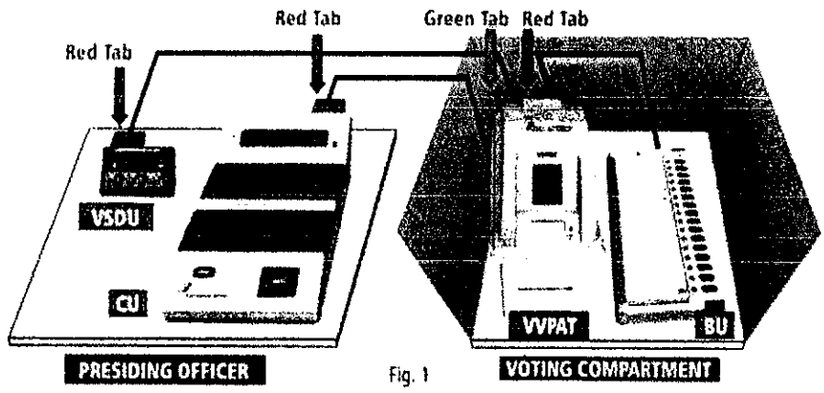


Fig. 1

VVPAT Components

The VVPAT system consists of following accessories.

VVPAT UNIT

The VVPAT printer prints the ballot slips and collects them in a secure sealed box. The VVPAT comes with an attached cable which is used to connect to the CU

Connector with Red/Black latch

VVPAT STATUS DISPLAY UNIT (VSDU)

VVPAT Status Display Unit (VSDU) is used to indicate the VVPAT system status to the Presiding officer. The VSDU displays PRINTER ERRORS, LOW BATTERY and also the suggested action to be taken.

Connector with Blue/Green latch

INTERCONNECTING CABLE TO VSDU

The Interconnecting Cable connects the VSDU to the VVPAT unit

VVPAT Unit with 5 meter cable (to connect to CU)

BATTERY PACK FOR VVPAT

A Battery Pack for running the VVPAT is inserted at the appropriate compartment in the VVPAT unit

Battery pack for the VVPAT unit

PAPER ROLL

Paper Roll for Printing of Ballots

Thermal Paper Roll

CARRY CASE

A Strong Case to carry the whole VVPAT system in a secure way

VVPAT Carring Case

245

VVPAT Operation

Commissioning of VVPAT by Presiding Officer (PO) at Polling Station on day of poll

STEP 1

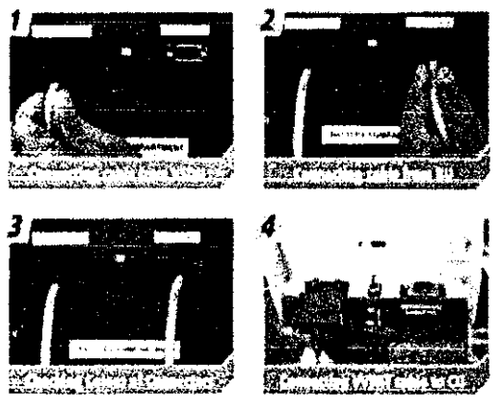
Preliminary Checks

1. At the polling station, remove the VVPAT and VSDU with cables carefully from carrying case
2. Check for proper condition of the VVPAT unit, VSDU unit, connecting cables and connectors
3. Sealing should be intact for paper roll compartment.
4. Check and ensure that the ballot compartment is empty. All paper slips or ballot slips should be removed from inside the compartment.

STEP 2

VVPAT Power and Connection with EVM System

- Place CU & VSDU and BU & VVPAT as per (Fig 1)
- Connect the VVPAT unit with EVM system as per steps below
- Close cable compartments after connecting the cables



NOTE! All connection of EVM & VVPAT shall be done only in Power off condition

246

STEP 3

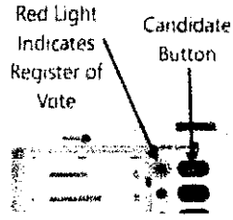
Mock Poll Procedure

To conduct a Mock Poll at polling booth follow the below process

SETUP

1. Power ON the CU
2. ON lamp will glow on CU and VVPAT
3. VVPAT prints Power ON Self Test (POST) slip. The POST slip is seen through the window and cuts and falls down.
4. In case of any error in the VVPAT, corresponding error is printed in the POST slip. Incase POST slip does not cut, replace VVPAT with good one
5. Now the EVM – VVPAT system is ready for voting process.

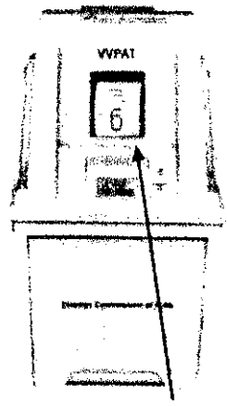
Ballot Unit Ready for Voting



MOCK VOTING

Follow the standard mock poll procedure for CU/BU as per the EVM instruction booklet.

1. The ballot process is initiated and each polling agent is allowed to vote for the candidate of choice.
2. VVPAT prints the ballot slip containing the serial number of the candidate, name of the candidate and corresponding party symbol.
3. The printed slip is held for 7 seconds and then cut and subsequently falls into the ballot collection drop box.
4. Repeat this ballot process by voting for each contesting candidate and verify the correctness of the printed ballot slips.
5. Keep a careful manual record of the votes polled in respect of each candidate.
6. Press the CLOSE button on CU.



Voter Sees Candidate Name, Number & Symbol Printed

NOTE! At least 50 votes should be cast during mock poll

247

MOCK POLL VERIFICATION

1. Press the RESULT button on CU and manually record the result data displayed by CU.
2. Press the CLEAR button on CU and observe TOTAL should be zero in the CU.
3. Switch OFF the CU.
4. Open the ballot compartment door of the VVPAT and collect the VVPAT ballot slips
5. Segregate these ballot slips as per the party symbol and record the result of the counted slips. Keep aside the POST slip(s).
6. Compare the VVPAT result data with the CU result data. Both must tally candidate wise.
7. After ensuring the correctness of the EVM-VVPAT system, remove the mock poll printed ballot slips and store separately.

NOTE! Fill mock poll certificate carefully and correctly

NOTE! Ensure that the ballot compartment is empty before actual poll

STEP 4

Sealing of ballot slips compartment after mock poll

- The presiding officer should ensure that the ballot slips compartment of VVPAT is empty and does not contain any paper slips.
- The presiding Officer is required to seal the ballot slips compartment door in presence of polling agents. Sealing procedure is same as followed for the CU.

STEP 5

Actual Poll Procedure

After ensuring that all seals are in proper condition and that the CU, VSDU, BU and VVPAT are placed as in Fig 1, power ON the CU.

- The presiding officer should ensure that the VVPAT should be in ON condition by checking the power ON LED
- Continue the actual polling as per the standard procedure in the case of EVM
- Polling officer shall be monitoring the Status of VVPAT through the VSDU messages.
- If the VVPAT stops printing and shows error in the VSDU the VVPAT Unit should be replaced by another VVPAT Unit. The voter should be asked to vote again on the replaced system.

NOTE! In the event of any failure in the VVPAT the unit should be replaced with a good one.

NOTE! In case of 'LOW BATTERY' indication by VSDU the battery Should be replaced by a new one

STEP 6

Closing of Poll Procedure

After completion of actual poll take the following steps

1. Press the close button on CU
2. Switch OFF the CU.
3. Disconnect the VVPAT cable connected to CU.
4. Disconnect the VSDU cable connected to VVPAT
5. Disconnect the BU cable connected to VVPAT

249

STEP 7

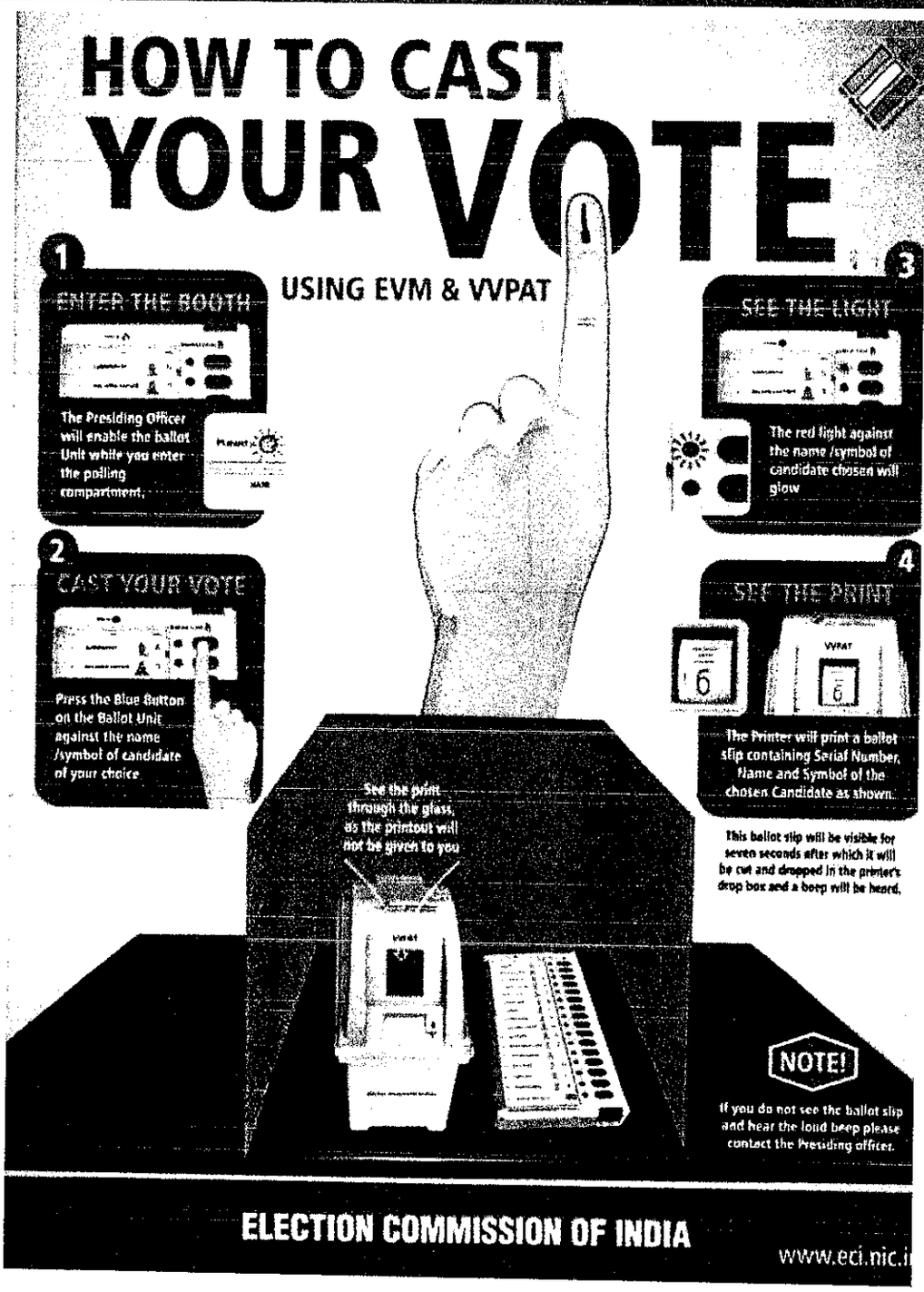
VVPAT Packing Instructions before dispatch to strong room/counting center

1. Keep VVPAT with its cable and VSDU with its cable in the VVPAT carrying case.
2. Care should be taken while winding of VVPAT and VSDU cables.
3. Seal the carrying case in the presence of Presiding Officer and polling agents.

Election Commission of India

250

ANNEXURE- II



251

ANNEXURE-III

HANDLING OF CU-BU-VVPAT FAILURES/ERRORS DURING POLL

PREPARATION OF POLLING OFFICIALS FOR FAULT HANDLING-SUGGESTIONS

Certain contingencies may arise during the polling process which may require certain actions. These are as follows: -

a. **In case the CU or the BU does not work properly**: (i) Switch off the CU and don't switch it on again (ii) Replace the complete set of EVM and VVPAT by another set of BU, CU and VVPAT (iii) Continue the poll with the new EVM set.

b. **In case Display Panel of the CU displays "Link Error":** (i) Check that the cable connections are proper by visual inspection (don't remove and reconnect the connectors); (ii) If "Link Error" still persists, replace the complete set of EVM and VVPAT.

c. **In case the VVPAT Status Display Unit (VSDU) displays "Error Code-1Replace Battery"**: Switch off the CU and replace the Power Pack of VVPAT printer. *It should be ensured that in no case replacement of power pack is done without switching off the CU.*

d. **In case the VSDU displays "Error Code – 2 Replace Printer" and the Presiding Officer has not pressed the BU enable button:** Switch off the CU and replace the defective VVPAT unit with the new VVPAT unit. *It shall be ensured that in no case replacement of VVPAT unit is done without switching off the Control Unit.*

e. **In case the Presiding Officer has pressed BU enable Button and the Voter has pressed the Candidate Button of the Ballot Unit and complains that 'Paper Slip' has not been printed or the Paper Slip printed by the VVPAT unit has not been cut and hanging against the display window then:** (i) If the busy lamp of the CU is not glowing and no Message/Error is displayed on VSDU, the complaint should be considered as baseless and rejected; (ii) If busy lamp is glowing on the CU and no Message/Error is displayed on VSDU, the Voter shall be requested to go into the Voting Compartment once again and press the Candidate Button on BU of his choice; (iii) If busy lamp of the CU and VSDU are glowing and VSDU has no display message, please switch OFF the CU and replace the VVPAT unit. (iv) The last voter whose paper slip has not been printed by VVPAT or has not been cut should be allowed to cast his vote after the VVPAT unit has been replaced.

   Please keep in mind that the vote is not recorded in the CU electronically unless the paper slip has been printed and cut by VVPAT. If VVPAT has not printed the paper slip, or the printed paper slip has not been cut, the last voter whose paper slip has not been printed by VVPAT or has not been cut should be allowed to cast his vote after the VVPAT unit has been replaced.

f. **In case the printed paper slip has not been cut and is hanging from the paper roll:** Replace the Printer, but no effort should be made to make it fall into the drop box. It should be allowed to remain hanging, as it is not to be counted at the time of counting of the ballot slips. The details of such an occurrence should be clearly recorded in the Presiding Officers diary in the following format:

i. The date and time of the occurrence.

ii. The name of the voter and his serial number in part in the electoral roll who was allowed to cast his vote after replacement of VVPAT.

iii. Whether the voter cast his vote after replacement of VVPAT or went away without casting his vote.

iv. The Total number of votes cast before the occurrence.

g. **In case a voter alleges after recording his vote that the printed paper slip generated by the printer has shown the name or symbol of a candidate other than the one he voted for:** Action should be taken as per provisions of Rule 49MA of the Conduct of Elections (Amendment) Rules, 2013:

(i) Obtain a declaration from the complainant in the Declaration Form (**Annexure-VI**) under his/her signature/thumb impression; (ii) Proceed to the voting compartment along with the complainant and polling agents present in the polling station at that moment; (iii) The voter shall be asked to cast a test vote in favour of any candidate and make second entry related to that elector in the Form-17A; (iv) Observe carefully whether the Printer has printed the paper slip correctly; (v) If the complaint of the elector is found genuine, the Presiding Officer shall report the facts immediately to the RO and stop further polling at the station; (vi) If the complaint of the elector is found false, make a remark to that effect against the second entry relating to that elector in Form-17A mentioning the serial number and name of the candidate for whom such test vote has been recorded and obtain the signature or thumb impression against such remark. Further make necessary entries regarding such test vote in item 5 in Part-I of Form 17-C.

253

ANNEXURE-IV

CHECK LIST OF ADDITIONAL ITEMS OF POLLING MATERIALS TO BE PROVIDED TO THE POLLING PARTY

1.	Voter Verifiable Paper Audit Trail (VVPAT) Printer Unit	:	1 No.
2.	VVPAT Status Display Unit (VSDU)	:	1 No.
3.	Carrying Case for the VVPAT system	:	1 No.
4.	Envelope made of thick black paper (For sealing printed paper slips of Mock Poll)	:	2 Nos.
5.	Plastic Box for Black Paper Envelope Sealing	:	1 No.
6.	Pink Paper Seal for sealing Plastic Box	:	2 Nos.
7.	Form of declaration by elector under rule 49MA of the Conduct of Elections Rules	:	10 copies

ANNEXURE-V

Mock Poll Certificate

This is certified that I, ... Presiding Officer at the Polling Station No.....of .....Assembly Constituency (or the .....Assembly segment under .....Parliamentary Constituency) conducted the mock poll at ..... AM today, the poll day i.e. .....(date), following scrupulously all the instructions issued by the Election Commission of India, using –

CU of Serial No. (as printed on back-side of the CU).....

BU of Serial No. (as printed on back-side of the BU).....

VVPAT Unit of Serial Number (if used).....

1. A total of ..... votes were cast for each candidate and also for NOTA.
2. It was verified that the LED light was getting lit up against the correct candidate/NOTA button, when the button was pressed and beep sound was properly heard.
3. The candidate-wise detail of votes polled during mock-poll and result displayed, is as under:

S. No.	Name of the Candidate	Number of votes cast during mock poll	Number of votes displayed in CU on checking the result	Number of Printed Paper Slips, as per counting on checking mock poll result (if VVPAT used)	Votes Cast and Result displayed & Printed Paper Slip count (if VVPAT used) Tallied with each other (YES/NO)
	NOTA				
Total					

4. **I have cleared the memory of the EVM and also removed the printed paper slips of VVPAT after the mock poll and verified tbat the memory has been cleared, by pressing the Total button and seeing the Total is shown as '0'.**
5. At the time of mock poll the following polling agents representing the candidates whose names mentioned against the names of such agents were present and I have obtained their signatures.

255

6. Poll Start Date and Time seen on the display of CU at the time of start of actual poll..... (To be filled in case of Post-2006 EVMs).

Sl.No.Name of Polling AgentName of PartyName of candidate Signature of PollingAgent

1.

2.

3.

4.

5.

or

At the time scheduled for mock poll no polling agent was present/the agent of only one contesting candidate was present. After waiting for fifteen more minutes, I conducted the mock poll along with other polling staff at .....AM.

Signature of Micro-Observer (if posted at the polling station)

Date:

Time: Name & Signature of the Presiding Officer

Polling Station No.....

Polling Station Name.....

256

ANNEXURE-VI

General/Bye-Election to.....

Sl. No. and Name of Parliamentary/Assembly Constituency.....

No. and Name of Polling Station.....

FORM OF DECLARATION BY ELECTOR

UNDER RULE 49MA OF CONDUCT OF ELECTIONS RULES, 1961

1. I hereby solemnly declare and affirm under sub-rule (1) of Rule 49 MA of the Conduct of Elections Rules 1961 that the paper slip generated by the printer attached to the Balloting Unit has shown the name and/or symbol of a candidate other than the candidate for whom I voted by pressing the concerned blue button against the name and symbol of the candidate of my choice on the Balloting Unit. I am ready to cast a test vote again to show that the allegation made by me is true and bonafide.

(2). I am aware of the penal provisions of Section 177 of the IPC that I shall be liable to be punished with imprisonment for a term which may extend to six months, or with fine which may extend to one thousand rupees, or with both, if the declaration given by me in para 1 above to the Presiding Officer appointed under Section 26 of the RP Act, 1951 is found to be incorrect.

Signature/Thumb impression of the Elector

Name of the Elector.....

Father/Mother/Husband's Name.....

Part No. of elector roll.....

Sl. No. of elector in that Part.....

Sl. No. in Register of Voters (Form 17A).....

Dated.....

Certified that the above declaration was made and subscribed by the elector above named before me.

Signature of the Presiding Officer

.....

Dated.....

257

ANNEXURE-VII

ANNEXURE TO PART-II OF FORM 17-C

RESULT OF PRINTED PAPER COUNT

Polling Station No. _____ **Unique ID of VVPAT : _____**

Sl.No. of candidate	**Name of candidate**	**Number of votes as per count of Printed Paper Slip of VVPAT**	**Number of test votes to be deducted as per item 5 of Part I**	**Number of valid votes. (3-4)**
(1)	(2)	(3)	(4)	(5)
1.				
2.				
3.				
4.				
5.				
6.				
Total				

Whether the total number of votes shown above tallies with the total number of votes shown against item 6 of Part I or any discrepancy noticed between the two totals.(YES/NO)

Place.....

Date.....

Signature of Counting Supervisor

Name of candidate/election agent/counting agent Full signature

1.

2.

3.

4.

5.

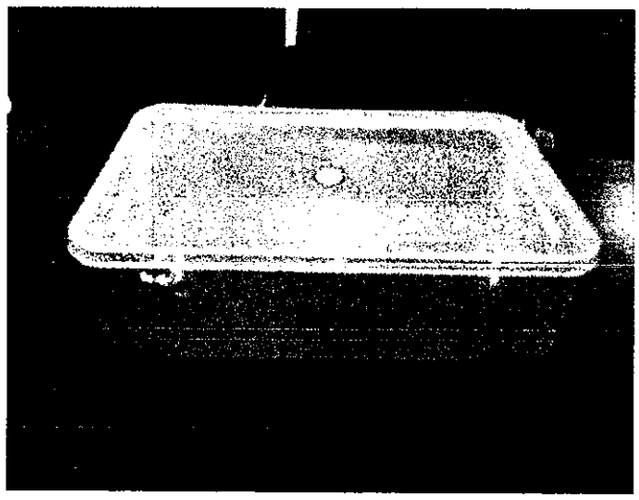
6.

Place.....

Date.....

Signature of Returning Officer

ANNEXURE-VIII



Sample Container -14 inch X 10 inch X 5 inch (length X breadth X height)

Sample Pigeonholes (Size of each compartment 6 inch X 4 inch X 4 inch)

259

ANNEXURE-IX

INSTALLATION OF PAPER ROLL IN VVPAT

a) Open the Paper Roll compartment by opening the side latches and by lifting the top cover. Observe the Paper Roll Compartment which holds the Paper roll.

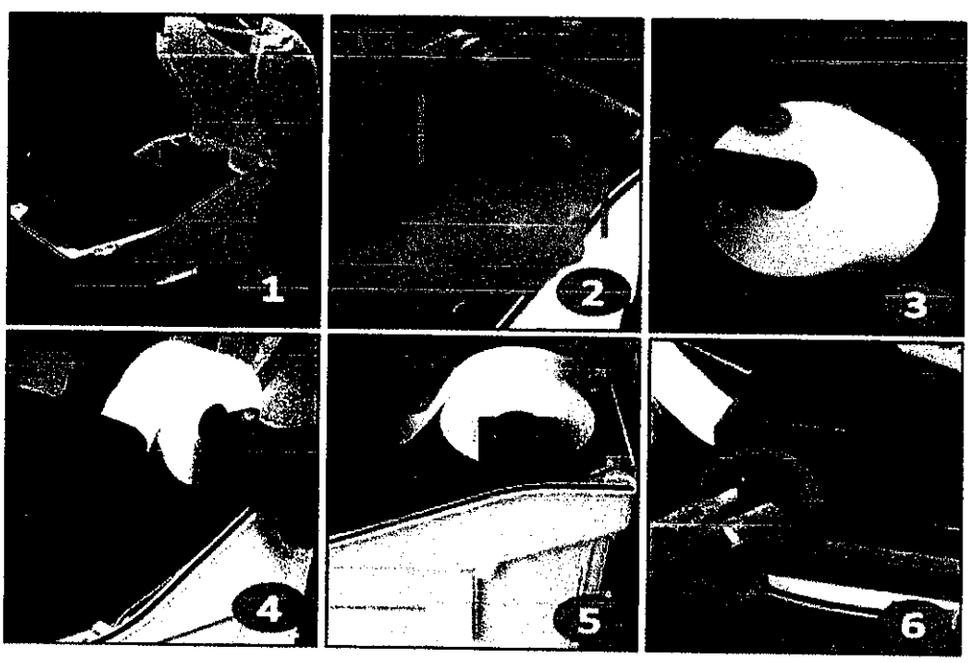
b) Remove "Spindle" from its position by pulling towards upward direction.

c) Insert "Spindle" into "Thermal Paper Roll".

d) Place the "Thermal Paper Roll" with "Spindle" into its position (i.e Paper Roll compartment) and press it towards down.

e) Insert "Thermal Paper Roll" edge into the "Guide -Paper Entry". Ensure that the plain paper should be on the top surface and the printed band should be on the lower Surface of the Paper.

f) Move the paper into the slot by rotating the paper feed knob clockwise.



Paper Roll Installation steps

T/C

260

ANNEX- C/25

IN THE HIGH COURT OF GUJARAT AT AHMEDABAD

SPECIAL CIVIL APPLICATION NO. 22074 of 2017

==========

SHAILESHKUMAR NAGJIBHAI PANSURIYA....Petitioner(s)

Versus

ELECTION COMMISSION OF INDIA & 2....Respondent(s)

==========

Appearance:
MR BHARAT T RAO, ADVOCATE for the Petitioner(s) No. 1
MR AMIT SHARMA WITH MR. SAHIL M SHAH, ADVOCATE for the Respondent(s) No. 1
MS MEGHA JANI WITH MR. SAHIL M SHAH, ADVOCATE for the Respondent(s) No. 2

==========

CORAM: **HONOURABLE MR.JUSTICE AKIL KURESHI**
and
HONOURABLE MR.JUSTICE A.Y. KOGJE

Date : 12/12/2017

ORAL ORDER

(PER : HONOURABLE MR.JUSTICE AKIL KURESHI)

1. This petition is filed for a direction to the Election Commission of India to make it mandatory to count all VVPAT slips alongwith the counting of votes through EVMs in the on-going State Assembly elections. The petitioner is a resident of the State and is concerned about the purity and proper conduct of such elections. His prime concern is that there is clear and distinct possibility of tampering the recording of votes in EVMs. In order to ensure conduct of free and fair elections and to eliminate any such possibility as also to remove any doubts in the minds of public, the Election Commission of India should ensure that all slips secured in the boxes through VVPATs should be

subjected to counting parallely with the electronic counting through EVMs. In this regard, the petitioner points out that the Election Commission of India has issued a press release dated 20th May,2017 in which it was declared that:

> "The Commission will count VVPAT slips up to a definite percentage, which will be determined by the Commission. The ECI will shortly evolve an appropriate framework in this regard. "

2. The Counsel for the petitioner during the previous hearing on 7th December,2017 had submitted that if not all the paper slips atleast 25% of the votes should be counted through VVPAT to ensure total transparency. It was also submitted that despite the declaration of Election Commission made in the press release dated 20th May, 2017 no framework for counting a certain percentage of votes through VVPAT was set up. We had while issuing notice to the Election Commission of India on 7th December,2017 in our order highlighted this aspect.

3. In response to the notice the Election Commission has appeared through legal representatives. We have heard learned Advocates for both the sides. Shri B.T.Rao for the petitioner highlighted that there have been complaints about the functioning of EVMs during the first phase of voting which took place on 9th December,2017. He submitted that complaints have been received suggesting that the EVMs can be connected to the mobile phones through Bluetooth leaving a possibility of tampering. He pointed out that on 08th December, 2017 the Election Commission of India issued guidelines providing for counting of votes through VVPAT in one booth of every constituency selected on random basis. However, according to the Counsel this would not provide sufficient safeguard against possible tampering and manual counting should be ordered atleast in 25% of the booths of every constituency.

4. On the other hand learned Counsel for the Election Commission of India opposed the petition contending that the Election Commission has taken all possible steps to eliminate any mistake, mischief or foul play during the conduct of elections and at the time of counting of votes. The booth to be selected for manual counting would be on random basis. This would be in addition to the discretionary powers of the Returning Officer to order manual counting in terms of Rule 56D of the Conduct of Election Rules, 1961. The Counsel submitted that similar issues were raised before the Supreme Court in Writ Petition (Civil) No. 983 of 2017. The Supreme Court while disposing of the petition by an order dated 30.10.2017 refused to interfere with the discretionary powers of the Election Commission of India. Counsel pointed out that prior to 8th December,2017 also the Election Commission of India had taken a conscious decision to order manual counting in one polling station per Assembly Constituency randomly selected which was circulated to the Chief Electoral Officers of the Gujarat and Himachal Pradesh States under a communication dated 11th October,2017. More detailed guidelines in this respect were issued under further communication dated 13th October, 2017.

5. Having heard the learned Advocates for the parties and having perused the materials on record we may at the outset clarify that we confine our observations and conclusions to the limited purpose of meeting with the petitioner's request for ordering full or atleast substantial percentage of the votes through manual counting during the on-going State Assembly Elections. We do not involve ourselves in the larger issues and controversies for the simple reason that this petition has been filed at a somewhat belated stage where the election machinery in the State was in full swing and the first available opportunity for the Court to peruse and examine the grievances of the petitioner arose on 7th December,2017 when the first phase of polling in

the State was scheduled on 09th December,2017. Even otherwise, an issue as serious and sensible as this cannot be summarily and permanently closed.

6. With these preliminary comments we may recall that the system of Voter Verifiable Paper Audit Trail now deployed by the Election Commission of India in the State elections for all polling stations in every constituency, would trace its genesis to the judgment of the Supreme Court in the case of ***Subramaniam Swamy v. Election Commission of India*** reported in (2013) 10 Supreme Court Cases 500. In the said judgment the Court had made following concluding remarks:

> "27. Though initially ECI was a little reluctant in introducing the "paper trail" by use of VVPAT, taking note of the advantage in the system as demonstrated by Dr. Subramaniam Swamy, we issued several directions to ECI. Pursuant to the same, ECI contacted several expert bodies, technical advisers, etc. They also had various meetings with the national and State level political parties, demonstrations were conducted at various places and finally after a thorough examination and full discussion, VVPAT was used successfully in all the 21 polling stations of 51 Noksen (ST) Assembly Constituency of Nagaland. The information furnished by ECI, through the affidavit dated 1-10-2013, clearly shows that VVPAT system is a successful one. We have already high lighted that VVPAT is a system of printing paper trail when the voter casts his vote, in addition to the electronic record of the ballot, for the purpose of verification of his choice of candidate and also for manual counting of votes in case of dispute.
>
> 28. From the materials placed by both the sides,m we re satisfied that the "paper trail" is an indispensable requirement of free and fair elections. The confidence of the voters in the EVMs can be achieved only with the introduction if the "paper trail". EVMs with VVPAT system can ensure the accuracy of the voting system. With an intent to have fullest transparency in the

system and to restore the confidence of the voters, it is necessary to set up EVMs with VVPAT system because vote is nothing but an act of expression which has immense importance in a democratic system.

29. In the light of the above discussion and taking notice of the pragmatic and reasonable approach of the ECI and considering the fact that in general elections all over India, ECI has to handle one million (ten lakh) polling booths, we permit ECI to introduce VVPAT in gradual stages or geographical wise in the ensuing general elections. The area, State or actual booth(s) are to be decided by ECI and ECI is free to implement the same is a phased manner. We appreciate the efforts and good gesture made by ECI in introducing the same. For implementation of such a system (VVPAT) in a phased manner, the Government of India is directed to provide required financial assistance for procurement of units of VVPAT."

7. In tune with the decision of the Supreme Court in case of **Subramaniam Swamy (supra)** the Election Commission of India would provide 100% paper-trail through VVPATs on the on-going State elections. In this regard in the press release dated 20th May, 2017, as noted earlier, the Election Commission of India had declared that the Commission would count VVPAT slips up to a definite percentage, which will be determined by the Commission and an appropriate framework in this regard would be evolved by the Commission shortly. The Election Commission of India had there upon issued a communication to the Chief Election Officers of Gujarat and Himachal Pradesh on 11th October,2017 which reads as under:

"I am directed to intimate that the Commission has directed that in the forthcoming General Election to State Legislative Assemblies of Gujarat and Himachal Pradesh, mandatory verification of VVPAT paper slips of randomly selected 01(one) polling station per Assembly Constituency shall be done on a 'pilot basis'. The above mandatory verification of VVPAT paper slips of 01(one) polling station (randomly selected) will be in

addition to the provisions of Rule 56D of the Conduct of Election Rules, 1961.

Detailed instructions for this purpose will be issued separately.

The above direction of the Commission shall be brought to the notice of all concerned."

8. Further detailed guidelines in this regard were issued under the communication dated 13th October,2017 which further provided as under :

"For this 'pilot' verification of VVPAT paper slips of randomly selected 01(one) polling station per Assembly Constituency, the following procedure shall be followed:

1. The verification of VVPAT paper slips of randomly sleeted 01(one) polling station for each Assembly Constituency shall be taken up after the completion of the last round of counting of votes recorded in the EVMs.

2. The random selection of 01(one) polling station per Assembly Constituency shall be done by Draw of lots, by the Returning Officer concerned, in the presence of candidates/ their agents and the General Observer appointed by the Commission for that Assembly Constituency.

3. The draw of lots must be conducted immediately after the completion of the last round counting of votes recorded in the EVMs (Control Units) in the designated counting hall for the particular Assembly Constituency.

4. A written intimation regrading the conduct of draw of lots for the random selection of 01(one) polling station for verification of VVPAT Slips shall be govern by the Returning Officer to the Candidates/their election agents well in advance.

5. The following procedure shall be followed for the conduct of draw of lots:

(a) White colour paper cards of postcard size shall be used for conducting the draw of lots.

(b) Total number of such paper cards should be equal to the total number if polling stations in the Assembly Constituency.

(c) The paper cards shall have pre-printed Assembly Constituency number, AC name and date of polling on the top, and the polling station number in the centre. Each digit of the polling station number shall be at least 1" * 1" (1 inch by 1 inch) size and printed in black ink.

(d) The paper cards to be used for draw of lots should be four-0folded in such a way that polling station number is not visible.

(e) Each paper card shall be shown to the candidate/their agents before folding and dropping in the container.

(f)The paper cards shall be kept in the big container and must be shaken before picking up 01(one) slip by the Returning Officer.

6. The verification of VVPAT paper slips shall be done in a 'VVPAT Counting Booth' (VCB) specially prepared for this purpose inside the Counting Hall. The booth shall be enclosed in a wire mesh just like a bank cashier's cabin so that no VVPAT paper slip can be accessed by any unauthorized person. One of the Counting tables in the Counting Hall can be converted into the VCB and can be used for normal counting of round-wise EVM Votes before the count of VVPAT slips as per random selection after the completion of round-wise EVM counting.

7. The verification count of the VVPAT paper slips of the randomly selected 01(one) polling station shall be conducted strictly in accordance with the instructions of the Commission on counting of printed paper slips.

8. The Returning Officer shall personally supervise the counting VVPAT paper slips at this booth. The General Observer concerned shall ensure close and careful observation of the entire exercise and ensure strict compliance of the Commission's instructions.

9. The above process shall be fully videographed.

10. After completion of the above process, the Returning Officer shall give a certificate in the annexed format.

The above direction of the Commission shall be brought to the notice of all concerned."

9. Few things emerge from these communications dated 11th October, 2017 and 13th October, 2017 of the Election Commission of India. First is that on random basis one poling station per Assembly constituency would be selected in which there would be manual counting of votes on the basis of paper slips generated through VVPAT. This would be in addition to the provisions contained in Rule 56D of the Conduct of Election Rules,1961. The random selection of the polling station for such counting would be done through draw of lots by the Returning Officer in presence of the candidates or their agents and the observers appointed by the Commission. Such lots would be drawn immediately after completion of the last round of counting of votes recorded in the EVMs. Detailed procedure for drawing of lots has also been laid down. The counting paper slips of the VVPATs shall be done in the manner specified. The Returning Officer would personally supervise counting process. The entire process would be videographed. After completion of the process the Returning Officer would giver a certificate in a prescribed format which contains necessary details such as number of votes cast as per the EVM, those cast as per the paper slips and discrepancies between the two, if any.

10. Thus the guidelines issued by the Election Commission of India through its latest circular dated 08th December,2017 are at its best and in addition and in reiteration of its earlier decision circulated through communications dated 11th October, 2017 and 13the October,2017. The procedure laid down through these communications would ensure

random selection of one polling station per Assembly constituency where the paper slips of VVPAT would be counted and the tally would be matched with the EVM counting. The detailed guidelines would ensure the random selection of the polling station as well as orderly counting of paper slips in presence of the Returning Officer himself, which process would be videographed.

11. This entire procedure would be in addition to the powers of the Returning Officer under Rule 56D of the Conduct of Elections Rules,1961 which reads as under:

> "56D Security of paper trail:-
> (1) Where printer for paper trail is used, after the entries made in the result sheet are announced, any candidate, or in his absence, his election agent or any of his counting agents may apply in writing to the returning officer to count the printed paper slips in the drop box of the printer in respect of any polling station or polling stations.
>
> (2) On such application being made, the returning officer shall, subject to such general or special guidelines, as may be issued by the Election Commission, decide the matter and may allow the application in whole or in part or may reject in whole, if it appears to him to be frivolous or unreasonable.
>
> (3) Every decision of the returning officer under sub-rule(2) shall be in writing an d shall contain the reasons therefor.
>
> (4) If the returning officer decides under sub-rule (2) to allow counting of the paper slips either wholly or in part or parts, he shall
>
> (a) do the counting in the manner as may be directed by the Election Commission;
> (b) If there is discrepancy between the votes displayed on the control unit and the counting of the paper slips, amend the result sheet in Form 20 as per the paper slips count;
> (c) announce the amendments so made by him; and
> (d) complete and sign the result sheet."

12. Perusal of this Rule would show that in case where the printed paper trail is maintained by the Election Commission during the election the candidate or his election agent or counting agent can apply to the Returning Officer to count the printed paper slips in respect of any polling station or stations under sub-rule (2) or Rule 56D. Upon such application being made the Retuning Officer would decide the matter and may allow the application in whole or in part or reject it if it appears to him to be frivolous or unreasonable. Sub-rule (3) or Rule 56D requires that such decision of the Returning Officer would be in writing and contain reasons. Under sub-rule (4) of Rule 56D the conclusions of the Returning Officer granting the request for counting of paper slips are specified. From the materials on record thus it emerges that the guidelines for mandatory counting of paper slips in one polling station per Assembly constituency is in addition to the powers of the Returning Officer under Rule 56D to accept the request of a candidate for counting all the paper slips in as many polling stations as the case for such counting is made out.

13. The mandatory counting of paper slips of a randomly selected polling station is to ensure demonstration of transparency and purity of the conduct of elections even in absence of any complaint or discrepancy being reported whereas Rule 56D would operate in a field where a candidate, his election agent or polling agent satisfies the Returning Officer that the need for counting of paper trail has arisen in one or more polling stations. Specific cases of genuine complaints cane be addressed by the Returning officer through exercise of the powers under Rule 56D of the Conduct of Election Rules,1961. There is no further requirement for enlarging the scope for mandatory counting of paper slips in addition to what the Election Commission in its discretionary powers has specified. Quite apart from the basic

responsibility of conduct of free and fair elections resting with the Election Commission of India with matching powers and duties, the issue was also presented before the Supreme Court in Writ Petition No. 983 of 2017 where the prayers of the petition was as under:

> "Issue an appropriate writ, order or direction the respondent to frame appropriate rules, regulations and guidelines for counting through VVPAT paper trails; "

14. In this respect while disposing of the Writ Petition by order dated 30th October,2017 the Supreme Court had made following observations:

> "As far as Prayer (b) is concerned, it is urged by Mr.K.K.Venugopal that guidelines have already been brought by the Election Commission of India. The same is disputed by Mr.Kapil Sibal and Mr.Vivek Tankha, learned senior counsel appearing for the petitioner. We leave it to the discretion of the Election Commission of India, as we are not inclined to enter into the said arena."

15. In view of the above discussion no direction as prayed for by the petitioner can be granted. Before closing we may observe that there is nothing on record to suggest that the decision of Election Commission of India to go for mandatory counting of paper slips in one polling station in every constituency in any manner, limits or restricts the discretionary powers of the Election Commission of India to enlarge the scope of such manual counting. We are sure and we hope that such a situation does not arise but in the unlikely scenario of discrepancies being reported in number of polling stations which have been subjected to such manual counting it is always open for and the Election Commission will consider manual counting in larger number of polling stations as may be advised.

With these observations the petition stands disposed of.

(AKIL KURESHI, J.)

(A.Y. KOGJE, J.)

SINDHU NAIR

272
ANNEX- C/26

ITEM NO.65 COURT NO.1 SECTION III

S U P R E M E C O U R T O F I N D I A
RECORD OF PROCEEDINGS

SPECIAL LEAVE PETITION (CIVIL) Diary No.41165/2017

(Arising out of impugned final judgment and order dated 12-12-2017 in SCA No. 22074/2017 passed by the High Court of Gujarat at Ahmedabad)

MOHD. ARIF RAJAPUT Petitioner(s)

VERSUS

THE ELECTION COMMISSION OF INDIA NIRVACHAN SADAN & ORS. Respondent(s)

Date : 15-12-2017 This petition was called on for hearing today.

CORAM :
HON'BLE THE CHIEF JUSTICE
HON'BLE MR. JUSTICE A.M. KHANWILKAR
HON'BLE DR. JUSTICE D.Y. CHANDRACHUD

For Petitioner(s) Dr. Abhishek Manu Singhvi, Sr. Adv.
Mr. Vivek Tankha, Sr. Adv.
Mr. Aljo K. Joseph, AOR
Mr. S.S. Hooda, Adv.
Mr. Prashant Sivarajan, Adv.

For Respondent(s)

UPON hearing the counsel the Court made the following
O R D E R

Dr. Abhishek Manu Singhvi, learned senior counsel appearing for the petitioner submits that he may be permitted to withdraw the present special leave petition to file a properly constituted petition under Article 32 of the Constitution of India for proper electoral reforms with regard to Voter Verifiable Paper Audit Trail (VVPAT) at the appropriate time, if so advised.

The special leave petition is permitted to be withdrawn.

Validity unknown
Digitally signed by CHETAN KUMAR
Date: 2017.12.15 13:07:48 IST
Reason:

(Chetan Kumar)
Court Master

(H.S. Parasher)
Assistant Registrar

T/C

273

ANNEX- C/27

ELECTION COMMISSION OF INDIA

NIRVACHAN SADAN, ASHOKA ROAD, NEW DELHI-110001

No. 51/8/VVPAT-INST/2018-EMS Dated: 13th February, 2018

To

The Chief Electoral Officers of
All States and Union Territories.

Subject: Mandatory verification of VVPAT paper slips- Pilot Testing – regarding.

Sir,

I am directed to state that the Commission has already mandated that VVPATs will be used with EVMs at all polling stations in all future General/Bye-Elections to the Parliament and the State Legislative Assemblies. The Commission conducted **mandatory** verification of VVPAT paper slips of randomly selected 01 (one) polling station per Assembly Constituency on a 'pilot' basis in the recently concluded General Elections to State Legislative Assemblies of Gujarat and Himachal Pradesh, in **addition** to the provisions of Rule 56D of the Conduct of Elections Rules, 1961, and the same has been extended to the ongoing General Elections to the State Legislative Assemblies of Meghalaya, Nagaland and Tripura, on 'pilot' basis.

The Commission has further directed that henceforth, **mandatory** verification of VVPAT paper slips of randomly selected 01 (one) polling station shall be conducted in all future General and Bye Elections to the House of the People and State Legislative Assemblies, **in addition** to the provisions of Rule 56D of the Conduct of Elections Rules, 1961, after the completion of the last round of counting of votes recorded in the EVMs, as under:

(a) In case of General and Bye elections to State Legislative Assemblies, verification of VVPAT paper slips of randomly selected 01 (one) polling station per Assembly Constituency.

(b) In case of General and Bye elections to the House of the People, verification of VVPAT paper slips of randomly selected 01 (one) polling station of each Assembly Segment of the Parliamentary Constituency concerned.

For this mandatory verification of VVPAT paper slips, the following procedure shall be followed:

1. The verification of VVPAT paper slips of randomly selected 01 (one) polling station for each Assembly Constituency/Segment shall be taken up after the completion of the last round of counting of votes recorded in the EVMs.
2. The random selection of 01 (one) polling station per Assembly Constituency/Segment shall be done by Draw of lots, by the Returning Officer concerned, in the presence of

candidates/their agents and the General Observer appointed by the Commission for that Constituency.

3. The draw of lots must be conducted immediately after the completion of the last round of counting of votes recorded in the EVMs (Control Units) in the designated Counting Hall for the particular Assembly Constituency/Assembly Segment.
4. A written intimation regarding the conduct of draw of lots for the random selection of 01 (one) polling station for verification of VVPAT Slips shall be given by the Returning Officer to the Candidates/their election agents well in advance.
5. The following procedure shall be followed for the conduct of draw of lots:
   a. White colour paper cards of postcard size shall be used for conducting the draw of lots.
   b. Total number of such paper cards should be equal to total number of polling stations in the Assembly Constituency.
   c. The paper cards shall have pre-printed Assembly Constituency/Assembly Segment number, AC/AS name and date of polling on the top, and the polling station number in the centre. Each digit of the polling station number shall be atleast 1" x 1"(1 inch by 1 inch) size and printed in black ink.
   d. The paper cards to be used for draw of lots should be four-folded in such a way that polling station number is not visible.
   e. Each paper card shall be shown to the candidates/their agents before folding and dropping in the container.
   f. The paper cards shall be kept in the big container and must be shaken before picking up 01 (one) slip by the Returning Officer.
6. The verification of VVPAT paper slips shall be done in a 'VVPAT Counting Booth' (VCB), specially prepared for this purpose inside the Counting Hall. The booth shall be enclosed in a wire mesh just like a bank cashier's cabin so that no VVPAT paper slip can be accessed by any unauthorized person. One of the Counting tables in the Counting Hall can be converted into the VCB and can be used for normal counting of round-wise EVM votes before the count of VVPAT slips as per random selection after the completion of round-wise EVM counting.
7. The Verification count of the VVPAT paper slips of the randomly selected 01 (one) polling station shall be conducted strictly in accordance with the instructions of the Commission on counting of printed paper slips.

8. The Returning Officer and Assistant Returning Officer, as the case may be, shall personally supervise the counting of VVPAT paper slips at this booth. The General Observer concerned shall ensure close and careful observation of the entire exercise and ensure strict compliance of the Commission's instructions.
9. The above process shall be fully videographed.
10. After completion of the above process, the Returning Officer shall give a certificate in the annexed format.

The above direction of the Commission shall be brought to the notice of all concerned.

Yours faithfully,

(Madhusudan Gupta)
Under Secretary

CC: Standard Distribution

Annexure

Pilot Testing of verification of paper slips of VVPAT of 01 randomly selected polling station

Name of State:.....

No. and Name of Assembly/Parliamentary Constituency:.....

No. and Name of Assembly Segment (in case of PC):.....

Sl.No. and name of Polling Station:.....

Unique ID of Control Unit:.....

Unique ID of VVPAT:.....

It is certify that pilot testing of counting of paper slips of VVPAT of 01 randomly selected polling station has been conducted as per the instructions of the Commission.

Name of Candidate	No. of Votes Cast		Discrepancy if any
	As per EVM	As per Paper Slips	
1.			
2.			
3.			
...			
..			
NOTA			
TOTAL VOTES			

Signature of Counting Agents

1.....

2.....

3.....

Signature of Counting Supervisor

Signature of Returning Officer

Signature of General Observer

T/C

277

ANNX- C/28

ELECTION COMMISSION OF INDIA

Nirvachan Sadan, Ashoka Road, New Delhi-110001

No. 51/8/VVPAT/2018/EMS Dated: 8th March, 2018

To

The Chief Electoral Officers of
all States/UTs.

Subject: Clarification regarding conduct of mock poll during commissioning of EVMs and VVPATs- regarding.

Sir,

I am directed to convey that some States have sought clarification whether the process of conduct of mock poll of 1000 votes on 5% randomly selected EVMs during commissioning of EVMs is to be followed in case of VVPATs also or not.

In this regard, it is clarified that during the commissioning of EVMs and VVPATs, mock poll of 1000 votes will be cast in 5% of randomly selected EVMs, as well as VVPATs. The electronic result shall be tallied with paper count. Candidates/their representatives shall be allowed to pick machines randomly for this purpose and also to participate in the process.

Yours faithfully,

(Madhusudan Gupta)
Under Secretary

Copy forwarded to

1. The Chairman-cum-Managing Director, Bharat Electronic Limited, Bangalore.
2. The Chairman-cum-Managing Director, Electronics Corporation of India Limited, Hyderabad.

... for information and necessary action.

TIC

278

ANNX- C/29

ELECTION COMMISSION OF INDIA

NIRVACHAN SADAN, ASHOKA ROAD, NEW DELHI-110001

No.51/8/16/4/2018-EMS **Dated: 18th June, 2018**

To

1. The Chief Electoral Officers of
   All States/ Union Territories.

2. The Chairman-cum-Managing Director,
   Bharat Electronics Limited,
   Nagavara, Outer Ring Road,
   Bangalore-560045, Karnataka

3. The Chairman-cum-Managing Director,
   Electronics Corporation of India Limited,
   Hyderabad, Andhra Pradesh.

Subject: First Level Checking of EVMs/VVPATs – Regarding.

Sir,

I am directed to invite your attention to the Commission's letter Nos. 51/8/16/4/2017-EMS, dated 30th August, 2017, 51/8/3/2018-EMS, dated 1st May, 2018 *(States/UTs to whom M3 EVMs and M3 VVPATs are allocated)*, 51/8/16/4/2018-EMS, dated 9th May, 2018 *(States/UTs to whom M2 or M2-M3 VVPATs are allocated)* regarding instructions on First Level Checking of EVMs and VVPATs and to clarify that -

a. First Level Checking (FLC) of EVMs and VVPATs shall be held separately;
b. FLC of EVMs shall be started without waiting for complete delivery of VVPATs.
c. Mock Poll in 5% of EVMs during FLC i.e. mock-poll in 1% of EVMs of 1200 votes, in 2% of EVMs of 1000 votes and in 2% of EVMs of 500 votes shall be done using VVPATs. After the mock-poll, the printed ballot slips of each VVPAT printer shall be counted to compare the result, independent of the electronic result in the CU, and the result of the printed ballot slips shall be tallied with the electronic result of CU. The tally should be shown to the representatives of political parties present in the FLC.

For this purpose, it shall be ensured that atleast 25 VVPATs are made available at each of the districts, where FLC of EVMs is to be conducted.

Yours faithfully,

T/C

(Madhusudan Gupta)
Under Secretary

279

ANNX- C/30

By Speed Post/E-mail

Election Commission of India

Nirvachan Sadan, Ashoka Road, New Delhi – 110001

No. 51/8/16/4/2018 - EMPS

Dated: 28th September, 2018

To

The Chief Electoral Officers of
All States and Union Territories.

Subject: - First Level Checking of EVM/VVPAT – Timing – reg.

Sir,

I am directed to refer to the Commission's instruction no. 51/8/16/4/2017-EMS dated 30.08.2017 and to state that in addition to the instructions on First Level Checking of EVM/VVPAT given therein, it has been decided by the Commission that the timing of the FLC of the EVM/VVPAT shall be at least from 9 AM to 7 PM on all days including holidays.

Further, you are also requested to ensure that the extant instructions of the Commission regarding proper arrangements to be made for smooth and secure conduct of First Level Checking are strictly adhered to.

Yours faithfully,

(Anoop Kumar)
Secretary

T/C

280

ANNX-C/31

ELECTION COMMISSION OF INDIA

NIRVACHAN SADAN, ASHOKA ROAD, NEW DELHI-110001

No. 51/8/T&A/2018-EMPS

Dated: 09th October, 2018

To

The Chief Electoral Officers of
All States and Union Territories.

Subject: Taking out EVMS AND VVPATS for Training and Awareness purpose.

Sir/Madam,

In supersession of Commission's instructions No. 51/8/7/2017-EMS, dated 29th September, 2018, on the subject cited, I am directed to state that to ensure proper training and awareness on use of VVPATs with EVMs, the Commission has directed that after First Level Checking (FLC) of EVMs and VVPATs:

(a) EVMs and VVPATs may be taken out for training and awareness purpose whenever needed even before first randomization subject to an upper ceiling of 10% of the total number of polling stations in the District.

(b) There shall be no distinction between training and awareness EVMs/VVPATs to utilize maximum number of EVMs/VVPATs for training and awareness purpose inter-changeably.

(c) Political Parties should necessarily be invited to witness this process from opening of Warehouse and re-sealing of warehouse after taking out the EVMs/VVPATs for training and awareness. Entire process to be videographed.

(d) The list of such EVMs and VVPATs shall be given to the National and State Recognised Political Parties. This list shall also be shared with the candidates/their agents, as and when they are finalised.

(e) Schedule of Awareness/Training shall be shared with Recognized National/State Political Parties.

(f) Standard Operation Procedure (SoP)for Training (including demonstration and awareness program) of EVMs &VVPATs is enclosed at **Annexure-A**.

(g) A list of probable risk during training & awareness is enclosed at **Annexure-B**

(h) A sticker of Yellow colour mentioning "Training/Awareness" shall be affixed on such EVMs and VVPATs.

(i) The abovementioned EVMs and VVPATs shall be stored in a separate designated warehouse, not below the sub-division headquarters level, with proper security and double lock-system, as is done for strong room having FLC-OK EVMs and VVPATs. The keys shall be kept with the two separate officers, nominated by DEO and shall not be below the rank of Tehsildar/Executive Magistrate.

(j) The DEOs shall be directly responsible for the safety and security of these Training and Awareness EVMs and VVPATs.

(k) Such EVMs and VVPATs shall be given only to the authorised officials deputed by the District Election Officer concerned.

(l) The DEO shall ensure that the officials chosen for creation of EVM/VVPAT related awareness/IEC campaign, as well as those nominated for handling these EVMs and VVPATs must be comprehensively trained on the usage and functioning of the EVMs and VVPATs.

(m) It shall be ensured that after the conclusion of daily training and awareness programs, these EVMs and VVPATs shall be stored in a secure Govt. Office/Govt. building only. If no such Govt. office/Govt. building is available, these EVMs and VVPATs shall be stored in the nearest block/tehsil headquarters under proper security. If there is no arrangement of security, the DEO shall provide the adequate security for these EVMs and VVPATs.

(n) Proper log book shall be maintained.

(o) In Assembly Constituencies having 100 or more polling stations, it shall be mandatory for the DEO to ensure that atleast 5% of the EVMs and VVPATs taken out for training and awareness purpose are re-introduced as Poll-day Reserve after de novo FLC, randomization, candidate setting etc carried out as per the extant instructions of the Commission. For Assembly Constituencies having less than 100 polling stations, the number of training/awareness EVMs and VVPATs to be re-introduced in the poll-day Reserve pool may be decided by the DEO as per the specific local requirement. In any case, effort must be made to ensure maximum machines from the training/awareness lot are re-introduced as Poll-day Reserve to optimize the utilization of machines for polls. The list of all such EVMs and VVPATs re-introduced in the Reserve poll shall

be duly shared with the political parties/candidates/their agents under proper acknowledgement.

(p) It is reiterated that training and awareness EVMs/VVPATs shall be added to poll day reserve, only after following process of FLC, randomizations and Candidate Setting in the presence of political parties/contesting candidates/their agents.

(q) FLC OK EVMs & VVPATs taken out for the abovementioned purpose, shall be marked 'Training and Awareness" in ETS also so that these EVMs and VVPATs cannot be used for Randomization.

Yours faithfully,

(Anoop Kumar)
Secretary

Copy to:

1. The Chairman-cum-Managing Director,Bharat Electronics Limited,Nagavara, Outer Ring Road,Bangalore-560045, Karnataka.

2. The Chairman-cum-Managing Director,Electronics Corporation of India Limited,Hyderabad, Andhra Pradesh.

283

Annexure-A

SOP for Demonstration and Awareness programme on EVM & VVPAT

The following Protocol shall strictly be followed for Demonstration and Awareness programme on EVM & VVPAT.

- Only "FLC OK" units shall be used for demonstration and awareness campaign.
- It shall be ensured that only dummy Ballot Paper is used in the BU.
- The VVPAT shall have dummy symbols which should match with the symbols of the Ballot Paper.
- Demonstration shall not be given in an open area as the VVPATs have to be shielded from direct sunlight.
- During demonstration/awareness, Ballot Unit and VVPAT shall be kept together so that voters can see the printed paper slip in VVPAT.
- Voters should be explained about the process using EVM with VVPAT and also informed about the use of VVPAT with EVM in elections.
- A Register should be maintained to record votes and signatures of all the participants on daily basis in the demonstration process.
- At the end of demonstration, the electronic result of the CU shall be cleared & VVPAT slips shall be removed from the VVPAT drop box. Further, it has to be ensured that on the next day the same process is repeated.
- Proper Security arrangement shall be made for movement of EVMs/VVPATs and awareness centres.

284

Annexure-B

PROBABLE RISKS

- 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). Hence, before using for awareness purpose, ensure that VVPAT slips print as per dummy ballot papers.
- Irregularity on use of Dummy Symbols.Hence, before using for awareness purpose, ensure that VVPAT slips print as per dummy ballot papers.
- In case of M3 EVMs, M3 VVPATs should be connected at the time of commissioning of the EVMs otherwise EVM will not accept a VVPAT at a later stage. Hence, for awareness purpose candidate setting in M3 EVMs should be done using Ballot Unit and VVPAT.
- Lock paper roll when transporting the VVPAT from one place to another. Otherwise, VVPAT may go into error mode.
- Do not switch on the VVPAT in broad daylight or directly under a bulb or halogen lamp at the time of awareness as the VVPAT may go into error mode. Hence, ensure that awareness on EVM and VVPAT shall be done in shaded/closed area.
- 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.
- Non adherence of SOP on Awareness of EVMs and VVPATs.

T/C

285

ANNX-C/3

REPORTABLE

IN THE SUPREME COURT OF INDIA

CIVIL ORIGINAL JURISDICTION

WRIT PETITION (CIVIL) NO. 935 OF 2018

KAMAL NATH .....PETITIONER(S)

VERSUS

ELECTION COMMISSION OF INDIA
AND OTHERS .....RESPONDENT(S)

WITH

WRIT PETITION (CIVIL) NO. 1000 OF 2018

J U D G M E N T

A.K.SIKRI, J.

Writ Petition (Civil) No. 935 of 2018 is filed by the petitioner, who is the President of the Madhya Pradesh Congress Committee, claiming the following reliefs:

Validity unknown
Digitally signed by SUSHIL KUMAR RAKHEJA
Date: 2018.10.17 15:24:19 IST
Reason:

> "(a) Issue an appropriate writ, order or direction to the Respondents to issue directions for conducting VVPAT verification at least 10% randomly selected polling stations

in each assembly constituency/assembly segment to ensure free and fair elections;

(b) issue an appropriate writ, order or direction to the Respondents to publish voter list in text format as per rules, and to expeditiously decide all complaints qua final publication of voter list under Rules 22(1)(c) of the Registration of Electors Rules, 1960 and to prohibit deletion of voters from the voter list without intimation to political parties;

(c) issue an appropriate writ, order or direction to the Respondents to issue fresh guidelines qua VVPAT whilst considering the grounds/issues raised in the present writ petition, including but not limited to random VVPAT checks, mock polls and recounting, quality of Thermal Paper and printing, collection of Paper Trails and storage, unique identification numbers on VVPAT and paper trail collection boxes, transportation of EVMs and VVPAT before and after polls, First Level Checking (FLC) of VVPAT and posting of officials; and

(d) any such further and other order/orders be passed as may be necessary and deemed fit and proper in the facts and circumstances of the case to subserve the interest of justice.

2. As can be seen from the aforesaid prayer clause, essentially two reliefs are prayed for. First relief is for issuance of directions for conducting Voter Verifiable Paper Audit Trail (VVPAT) verification on random basis for 10% of the votes. In the second place, direction is sought to provide to the petitioner soft copies of the draft electoral rolls published on July 31, 2018 in text format; to decide complaints pertaining to voter list expeditiously; and to

prohibit deletion of voters from the voter list without intimation to the political parties.

3. In Writ Petition (Civil) No. 1000 of 2018, similar reliefs were pressed. However, the facts as they appear in Writ Petition (Civil) No. 935 of 2018 are taken note of.

4. We would like to place on record, at the outset, that the detailed arguments which were advanced by the petitioner were highly concentrated on the second prayer, that too for providing soft copies of the draft electoral rolls in text format. Insofar as the first relief is concerned, objection was raised by Mr. Vikas Singh, learned senior counsel appearing for respondent No.1 – Election Commission of India (hereinafter referred to as 'ECI'), to the maintainability of such a prayer on the ground that this issue has already been dealt with by this Court. We will take note of the respective submissions on this aspect at the appropriate stage. Since, the second prayer has become the bone of contention, in the first instance, we would like to deal with that aspect.

5. The main reason for which the petitioner is seeking direction to the respondents to publish voter list in text format and supply the same is that it is necessitated to ensure that the voter list is

properly and fairly drawn, which includes all the eligible voters on the one hand and also excludes the duplicate, fake or incorrect voters. It is stated by the petitioner that he along with senior leaders from the State of Madhya Pradesh submitted a detailed representation on June 03, 2018 highlighting various duplicate, repeat, multiple, illegal, invalid and false entries/voters in the electoral rolls of Madhya Pradesh for Assembly Elections, 2018 and the ECI was requested to address the same. As per the petitioner, there is an increase by 40% in numbers of voters vis-a-vis population numbers of electors in the State of Madhya Pradesh since the last Assembly Election, i.e. in the last five years. It is contended that if voters/electors with birth year 1991-2001 will attain age of 18 years between 2008-2018, it can be reasonably expected that new voters added in the years 2008-2018 would be similar to the increase in population i.e. 1,18,18,290. However, it is shocking and alarming to see that increase in total number of voters i.e. 1,45,13,404 (more than 40% increase) in the corresponding increase in population during 2008-2018. Therefore, this additional increase over and above the population increase i.e. 26.95 lakhs of votes in the State of Madhya Pradesh seems inconceivable and incalculable.

6. The petitioner, accordingly, made representations to the ECI to take appropriate action to rectify the mistakes. The ECI sent letter dated July 16, 2018 to the All India Congress Committee (AICC), *inter alia*, stating that the allegations made in the representation dated June 03, 2018 preferred by the petitioner are not substantiated. At the same time, the ECI had also admitted, to the following effect, that there were some duplicate and fake entries in the voter list:

> "(a) INTRA AC – 9664 were found in the repeated entry
>
> (b) INTER AC – 8278 cases were found in the repeated entry
>
> (c) Photo Entries – 2,37,234 photo entries found to be suspicious/unclear/blank photos;"

7. The petitioner also submits that the ECI has, thereafter, dropped more than twenty four lakh voters from the voter list of the State of Madhya Pradesh published in January 2018. The ECI has also admitted that 2,37,234 photo entries are found to be suspicious, unclear and blank photos. On the aforesaid premise, the petitioner submits that the political parties should be provided voter list in text format so that they are in a position to electronically scan the same and find out whether there are any duplicate or fake voters in the voter list prepared by the ECI.

8. In support of the aforesaid demand of supply of electoral roll in PDF form in text mode, Mr. Kapil Sibal, learned senior counsel, referred to Clause 11.2.2.2 of Chapter XI of the Election Manual 2016 which reads as under:

> "11.2.2.2 Putting draft roll on website:- Additionally, the draft roll shall be put in public domain, at Chief Electoral Officer's website, in a PDF format on the same day. The draft roll shall be put on website in a text mode and no photographs would appear against the elector's details. Instead it would indicate in the box meant for the photograph of elector whether the photograph is available or not."

9. It was argued that as per the aforesaid clause contained in the Election Manual itself, the ECI was required to prepare the draft roll in text mode, *al beit* without photographs. The purpose was to enable the political parties to analyse and scrutinise the data and based thereupon to give any suggestions that are needed or submit objections if it is found that there are duplicate or fake voters. As against the aforesaid mandate, the ECI has provided Compact Discs (CDs) containing draft electoral roll published on July 31, 2018 in PDF non-editable form for all 230 constituencies of the State of Madhya Pradesh. Such scanned copies are in fact images and, therefore, inadequate for the purpose of scrutiny wherein data cannot be analysed. It is also stated that in 2013

Assembly Elections in Madhya Pradesh, draft electoral rolls were provided in text mode. Similarly, draft electoral rolls, as published on July 31, 2018 for the State of Rajasthan, have also been provided in text mode. Departure made in the instant case is questioned as unreasonable.

10. The ECI has filed a detailed counter affidavit. It is stated that the ECI has put the voter list on website in text mode and even images on the website are in text mode. However, the ECI has taken a conscious decision not to give copies of these voter list to the political parties in scannable text mode keeping in view the issue of privacy of voters. Various averments in the writ petition are strongly refuted in the counter affidavit. The ECI has stated that the petitioner had submitted a representation dated June 03, 2018 regarding various duplicate, repeat, multiple entries/voters in the electoral rolls of Madhya Pradesh for Assembly elections. As per the complaint received, 26.76 lakh records were submitted for 'Within AC' of 91 Constituencies and 26.74 lakh records of 'Across AC' of 101 Constituencies. All these entires have been verified physically in a door-to-door campaign. In physical verification, 23,67,487 electors were found present, 2,34,596 electors were either deleted already or not found enrolled in the

respective constituencies. In 46,859 cases, electors were found to be absent and 16,675 electors were found to be deceased. In all such cases, the action for deletion has already been taken. It is emphasised that only 8,728 cases were found in the repeated entry category against which appropriate action has already been initiated as per law.

11. The ECI accepts that during the process of continuous updation from January 19, 2018 to July 31, 2018, there was a net deletion of around 24 lakhs entries from the electoral roll and it is also correct that more than 2 lakh photo entries were flagged as being unclear/blank/repeated photos but out of these entries, 1,04,284 entries were found to be valid and only 97,687 entries had to be corrected during the aforementioned continuous updation of the electoral roll. Explanation given is that electoral roll updation is a continuous and ongoing process and the ECI as well as the office of the Chief Electoral Officer, Madhya Pradesh are committed to ensuring the purity and correctness of the electoral roll through continuous addition or deletion of names of electors on the basis of door-to-door survey by Block Level Officers (BLOs) and by processing all sort of information gathered through

NSVP, CEO website or complaints received through the helpline number (1950), etc.

12. It is also claimed that the ECI has been taking transparency measures in electoral registration. The recognized political parties are supplied, free of cost, two copies (one hard copy in pdf with image of electors and another in soft copy without image of electors) of the electoral roll of the constituencies at the time of draft publication and final publication under the provision of Rule 11(c) and 22(c) of the Registration of Electors Rules, 1960. Further, the unrecognized registered political parties/NGOs/public can obtain soft copy of the electoral roll (without images of electors) in a CD in pdf format on a nominal price of Rs.100/- only per CD, containing the electoral roll of an Assembly Constituency, on request. In addition to the above, as per the ECI's existing instructions, image PDF of electoral rolls are published on website of Chief Electoral Officer of the State concerned so as to be placed in the public domain for view of general public. The general public can access such image PDF of electoral rolls through captcha containing alphabet, numeral and special characters.

13. On the basis of the aforesaid averments, Mr. Vikas Singh argued that the ECI itself does the exercise of de-duplication which was informed to the political parties also in the meeting which was conducted by it. He also submitted with vehemence that representation dated June 03, 2018 of the petitioner was replied on June 08, 2018 wherein it was clearly stated that corrections had already been carried out. According to him, these corrections took place on May 25, 2018 itself, i.e. even before the representation dated June 03, 2018 was submitted by the petitioner. It was duly communicated on June 08, 2018. Thereafter, draft voter list was published on July 31, 2018 wherein all the concerns have already been taken care of. Highlighting the issue of privacy of voters, it was argued by Mr. Vikas Singh that in case voter list is supplied in text form, it will enable data mining of various nature. For this reason, there was a re-look into the matter and the ECI had decided to provide the list in image form. It was submitted that Clause 11.2.2.2 of Chapter XI of Election Manual 2016, on which reliance was placed, does not require supply of draft voter list in searchable text mode. In any case, it was only an administrative manual and had no statutory force. This can always be suitably amended by the ECI having

regard to the exigencies. Therefore, there was a conscious decision in the form of instructions dated January 4, 2018 to supply non-searchable text mode in view of the safety and privacy concerns of the voters. Mr. Vikas Singh submitted that right to privacy has now been recognised as a fundamental right in ***K.S. Puttaswamy and Another*** v. ***Union of India and Others***[1] and it becomes the duty of the ECI to take care of that.

14. It can be discerned that the real issue is whether voter list is to be supplied to the political parties in text mode; *albeit* in PDF form. Therefore, our discussion concentrates on this issue.

15. There is no doubt about the *bona fides* of the ECI. It is a matter of record that in the last 25-30 years, ECI has built up the reputation of an impartial body which strives to hold fair elections. It is a Constitutional Authority and has been discharging its functions quite satisfactorily. People of this country, by and large, trust this institution for its impartial manner of discharging its functions. That is absolutely essential as well in a democratic polity where 'We, the people' elect the representatives to the legislative assemblies of the State as well as Parliament at the

1 (2017) 10 SCC 1

Centre. It is the will of the people which should be truly translated into reality. In that sense, the function of ECI becomes very important and it is supposed to discharge the same with utmost integrity, impartiality and objectivity. In *re: Special Reference No. 1 of 2002*[2], this Court emphasised the importance of Election Commission in the following manner:

> "105. ...The duty of the Election Commission is to conduct fresh election and see that a democratically elected Government is installed at the earliest and any decision by the Election Commission, which is intended to defeat this very avowed object of forming an elected Government can certainly be challenged before the Court if the decision taken by the Election Commission is perverse, unreasonable or for extraneous reasons and if the decision of the Election Commission is vitiated by any of these grounds the Court can give appropriate direction for the conduct of the election."

16. In the process of conducting fair elections, the ECI is also supposed to ensure that only genuine voters cast their votes. It has to ensure that there are no duplicate, fake or incorrect voters in the voting list prepared by it. It has also to ensure that genuine voters are not left out. Voter list should, therefore, be genuine in all respects. It is for this reason the ECI prepares draft voter list. While doing so, it attempts to remove duplicate, repeat or fake voters. It also endeavours to include all genuine voters. This

2 (2002) 8 SCC 237

process is not only undertaken with the aid of mechanical devices, namely, computer etc. but by sending its manpower on door-to-door basis. For the same reason, namely, to ensure that voter lists are flawless, these lists are put on the website for the voters to see and those who are excluded can make grievance/representation about the same. Likewise, for the same reason, the copies of the voter lists are supplied to the political parties as well and their objections are invited. This is done to give chance to the political parties to go through these lists so that they are able to point out any errors, if any, in these lists. The ECI even holds all party meetings for this purpose where such issues are discussed.

17. The ECI claims that it has taken all necessary steps in this behalf.

18. It is stated by the ECI on affidavit that draft electoral roll of January 19, 2018 was rectified by ECI around May 25, 2018, whereas the first complaint of the petitioner and the political party to which he is affiliated regarding duplication/multiplication of voters is dated June 03, 2018. Thereafter, ECI gave a detailed reply to the petitioner and his political party on June 08, 2018, June 15, 2018 and July 16, 2018, pointing out that the electoral

rolls had been rectified. Furthermore, ECI also supplied a copy of the rectified draft electoral roll to the petitioner, and the political party to which he is affiliated, on July 31, 2018. It was also stated at the bar that ECI has also now published the Final Electoral Roll on September 27, 2018 and supplied a copy of the same to the petitioner (and his political party) wherein all such defects/discrepancies find no place as they have already been rectified earlier. The ECI has explained that revision and updation of the electoral roll is a continuous process, which the ECI is diligently pursuing continuously[3].

19. In the aforesaid context, we need to examine the demand of the petitioner for supply of electoral roll in text format. This demand is based upon Clause 11.2.2.2 of the Election Manual which has already been reproduced above. This clause places an obligation on the ECI to put the draft roll on its website in PDF format. The purpose is to bring it in public domain so that each voter is able to

3 It may be mentioned that Mr. Vikas Singh, learned senior counsel, appearing for the ECI took strong exception to the production of documents from a private website on September 20, 2018 and handing over the same to the Court during hearing wherein on the basis it was sought to be demonstrated that there were mistakes in the electoral rolls inasmuch as same face was shown against as many as 36 voters. He submitted that it was done to prejudice and mislead this Court as the aforesaid error pointed out by the petitioner had already been rectified around May 25, 2018 and this fact is informed to the petitioner as well. According to him, thereafter there was no cause in filing the present petition and, in any case, no reason to submit the said document. Mr. Sibal, learned senior counsel appearing for the petitioner, on the other hand, contended that the purpose of producing the aforesaid document was to show that glaring mistakes of this kind have been committed earlier, which could be rectified only after the petitioner pointed out these mistakes. Be that as it may, we leave the matter at that.

access the same and find out whether his/her name is correctly shown and in case of any error, the said voter is in a position to get the same rectified. Likewise, in case a particular voter is missing from the list, that individual would be in a position to take up the matter with the ECI for inclusion of his/her name. A copy thereof is also given to the political parties as well, because these political parties have equal interest in ensuring that the aforesaid mistakes are removed. They can additionally check as to whether there are duplicate or fake voters also in the list and seek correction thereof. To this extent, there is no quarrel. However, the second part of the aforesaid clause mentions that draft roll would be put in a 'text mode'. It also states that no photograph would appear against the electors' details. The entire dispute hinges upon the meaning that is to be assigned to 'text mode'. The argument of the petitioner is that 'text mode' is the one which provides searching techniques as well. For this purpose, following description of 'full text search' from Wikipedia is produced:

> "In text retrieval, **full-text search** refers to techniques for searching a single computer-stored document or a collection in a full-text database. Full-text search is distinguished from searches based on metadata or on parts of the original texts represented in databases (such

as titles, abstracts, selected sections, or bibliographical references).

In a full-text search, a search engine examines all of the words in every stored document as it tries to match search criteria (for example, text specified by a user). Full-text-searching techniques became common in online bibliographic databases in the 1990s. Many websites and application programs (such as word processing software) provide full-text-search capabilities. Some web search engines, such as AltaVista, employ full-text-search techniques, while others index only a portion of the web pages examined by their indexing systems.

20. Refutation of Mr. Vikas Singh is that 'text mode' in Clause 11.2.2.2 of the Election Manual relates to the 'content' of the draft electoral roll and not its 'format'. It is argued that prescription in the aforesaid clause of the Manual requires putting the draft electoral roll in text mode which would mean that it should contain only the text of the elector's details such as his name, address, age, etc. and not his/her photograph. It is explained that any PDF document generally contains two kinds of content: (i) Text and (ii) Pictures/Photographs/Pictorial Content. Any elector's details would include his name, age, address, etc. (i.e. 'the text part') as well as his photograph (i.e. 'the photograph/picture/pictorial content part'). Thus, the use of the phrase 'text mode' in Clause 11.2.2.2 of the Election Manual only means that the draft electoral roll put up on the Chief Electoral Officer's website shall only

contain 'text' of the elector's details and not his/her 'photographs/pictures/pictorial content'. It is also explained that every PDF document, whether it is a searchable or non-searchable/Image PDF and which contains any text content in a 'Text Mode' is PDF in that sense. It is further submitted that there is nothing called a 'Text Mode' format of a PDF document. A simple 'Google search' in that regard would also clearly and conclusively establish the same.

21. We find force in the submission of the ECI. Clause 11.2.2.2 of the Election Manual uses the expression 'text mode'. The draft electoral roll in that mode, i.e. text mode, has been supplied to the petitioner. The clause nowhere says that the draft electoral roll has to be put up on the Chief Electoral Officer's website in a 'searchable PDF'. Therefore, the petitioner cannot claim, as a right, that the draft electoral roll should be placed on the website in a 'searchable mode'. It has only to be in 'text mode' and it is so provided.

22. The document from Wikipedia relied upon by the petitioner relates to 'full text search' and not 'text mode'. Obviously, when the said document explains how 'full text search' is to be

undertaken, the explanation would be that it is a search engine which examines all of the words in every stored documents and would provide full text searching techniques as well. However, the absence of the words 'search' in Clause 11.2.2.2 of the Election Manual would make all the difference.

23. It is rightly explained by the ECI that PDF documents are primarily of two types/formats, namely:

(i) "Image-only" or Scanned PDFs – When scanning hard copy documents on MFPs and office scanners, or when converting a camera image, jpg, tiff or screenshot into a PDF, the content is "locked" in a snapshot-like image, without an underlying text layer. Such image-only PDF documents contain just the scanned/photographed images of pages. Image-only PDF files are not searchable, and their text usually cannot be selected, searches or copied.

(ii) Searchable PDFs – In Searchable PDFs, a text layer is added to the image layer, usually placed underneath. Such PDF files are almost indistinguishable from the original documents and are fully searchable. Text in searchable PDF documents can be selected, searched and copied.

24. Once we find that Clause 11.2.2.2 does not entitle the petitioner to get the draft electoral roll in the text mode which is searchable as well viz. in 'full text search' form, it is for the ECI to decide about the format in which the draft electoral roll is to be published. ECI has given the reasons for not adhering to the request of the petitioner in providing draft electoral roll in searchable PDF format. According to it, issues of privacy of voters are involved and the move of ECI is aimed at prevention of voter profiling and data mining. According to ECI, ensuring free and fair elections, to which it is committed, also necessitates that ECI is duty bound to protect the privacy and profiling of electors. Therefore, it is duty bound to take all precautionary measures. However, it is not necessary to go into this aspect.

25. One we read and interpret Clause 11.2.2.2 of the Election Manual in the aforesaid manner, the decision taken by the ECI which is contained in its Instructions dated January 4, 2018 becomes relevant. In those Instructions, ECI has directed its field level functionaries to put only the 'Image PDF' of electoral roll in the public domain. We are, therefore, of the opinion that the format in which the draft electoral roll is supplied to the petitioner fulfills the requirement contained in the Election Manual. It may be added

that if the petitioner so wants, he can always convert it into searchable mode which, of course, would require him to put his own efforts.

26. Other relief which is claimed by the petitioner is to seek directions for conducting VVPAT verification at least 10% randomly selected polling stations in each assembly constituency/assembly segment to ensure free and fair elections. In this behalf, our attention was drawn by the respondents to Rule 56(d). It was also submitted by the respondents that this issue cannot be raised by the petitioner having regard to the orders passed on earlier occasions in few writ petitions which were filed on this aspect. The respondents referred to orders passed in ***Prakash Joshi*** v. ***Election Commission of India***[4]. In that case also, where identical prayer was made, the petition was disposed of by orders dated October 30, 2017 in the following manner:

> "Mr. K.K. Venugopal, learned Attorney General submits that as far as Prayer (a) is concerned, the Election Commission of India has already implemented the same. The situation is accorded to by Mr. Amit Sharma, learned counsel for the Election Commission of India. As far as Prayer (b) is concerned, it is urged by Mr. K.K. Venugopal that guidelines have already been brought by the Election Commission of India. The same is disputed by Mr. Kapil Sibal and Mr. Vivek Tankha, learned senior counsel appearing for the petitioner. We leave it to the discretion of

4 Decided on October 30, 2017 in W.P. (C) No. 983 of 2017

> the Election Commission of India, as we are not inclined to enter into the said arena. As far as Prayer (c) is concerned, it is submitted by Mr. K.K. Venugopal that the Election Commission of India has issued appropriate guidelines, and this Court may say that no officer/official against whom disciplinary proceedings have been initiated shall be posted in any key positions.
>
> Having heard Mr. K.K. Venugopal, we direct that the Election Commission of India shall not post any officer/official against whom the disciplinary proceedings has been initiated in any key position in any district.
>
> As far as prayer (d) concerning installation of CCTV cameras inside the polling booth to watch the mobility of persons inside the polling booth and display of such videograph alongwith the number of votes poll outside the polling booth on a display board is concerned, we are of the considered opinion that the same is not permissible and accordingly, the said prayer stands rejected.
>
> The writ petition is accordingly disposed of."

27. Another writ petition being W.P.(C) No. 1012 of 2017[5] was filed before this Court in October 2017 itself, with almost identical prayer. This was dismissed *in limine* on November 20, 2017. In the counter affidavit, ECI has also referred to similar writ petitions filed in the High Court of Gujarat, which met the same fate.

28. In view of the orders dated October 30, 2017 passed in W.P.(C) No. 983 of 2017 and on the basis of statement given by the ECI in the Court, we do not intend to entertain this relief.

---

5 ***Manubhai Chavada*** v. ***Election Commission of India & Ors.***

306

The writ petitions are accordingly dismissed.

.....J.
(A.K. SIKRI)

.....J.
(ASHOK BHUSHAN)

NEW DELHI;
OCTOBER 12, 2018

ANNEXURE- C/33
307

INDIAN STATISTICAL INSTITUTE

DELHI CENTRE

भारतीय सांख्यिकीय संस्थान

दिल्ली केन्द्र

Phone : +91 11 41493915
Fax : +91 11 41493981,
Email : headdc@isid.ac.in
फोन : +91 11 41493915
फैक्स : +91 11 41493981,
ई मेल : headdc@isid ac.in

7, SJS SANSANWAL MARG,
NEAR QUTUB HOTEL,
OPP. KATWARIASARAI BUS STOP,
NEW DELHI-110016 (INDIA)
7 शहीद जीत सिंह सनसनवाल मार्ग,
नजदीक कुतुब होटल,
कटवारिया सराय बस स्टॉप के सामने
नई दिल्ली–110016, (भारत)

HEAD, DELHI CENTRE
प्रमुख, दिल्ली केन्द्र

No.HDC: A34: 43 : 19

March 22, 2019

To
Shri Sunil Arora
Chief Election Commissioner of India

Subject: Report on Sampling related issues for mandatory verification of VVPAT slips with EVM counts – Letter No.51/8/VVPAT-ISI/2018-EMS dated 10th August 2018 – Reg.

Dear Shri Sunil Arora,

As per the above cited letter, The Election Commission of India (ECI) had requested the Indian Statistical Institute (ISI) to come up with statistically sound solution to the debate about the number/percentage of VVPAT slip counts to be undertaken during elections. From the beginning, and with your permission, Professor Rajeeva L. Karandikar, Director, Chennai Mathematical Institute, was involved in the exercise. Subsequently, Mr. Onkar Prosad Ghosh, Dy. Director General, (Social Statistics Division), CSO, MOSPI was nominated by the National Sample Survey Organisation (NSSO) for this purpose.

The report, jointly authored by the three of us, is being submitted to the Commission along with this letter.

While preparing this report we have had several discussions with the officials of ECI as well as with several leading Statisticians in the country. We had held a discussion meeting in ISI on 4.10.2018 under the auspices of ECI which was attended by Sh. Sudeep Jain and Sh. Nikhil Kumar on behalf of ECI and in which we had invited Professor Debasis Kundu from IIT, Kanpur, Professor Madheswaran from ISEC, Bangalore as well as Mr. K. Ashok Varadhan Shetty, ex-IAS officer. Mr. Shetty has continued to give his inputs through written communication. Also ECI had forwarded some communication from Dr. S. K. Nath on these and related issues. All these inputs have been considered while finalising our report.

The report is in two parts. In the operational first part we have addressed the oft repeated question about sampling fraction. We have also suggested a statistical basis for the study and have identified the 'population' from which the sample is to be drawn. Based on two extraneous, but main inputs, *viz.*, allowable margin of error (2%) and an extremely high confidence level (4σ or over 99.99366%), we have suggested an optimal sample size in this part. We have ended the first part by proposing a procedure in case a mismatch between VVPAT slip counts and EVM counts is found in the sampled EVMs.

In the second part, Appendix, we have tried to clarify on some common misconceptions. In an effort to be extremely transparent about our numbers we have also included Python codes which have been used in the calculations so that anyone can check the same. Also, as an addendum to our recommendations in the first part, we have also included tables for 1% margin of error. In the end, we have also reproduced your original letter dated 10th August.

It is our hope that this report will help the ECI to take a decision about VVPAT slip verification in future elections. On behalf of the other two members of this team I also thank you for giving us this opportunity to work with ECI.

Yours sincerely

agbhatt

Abhay G. Bhatt

अभय गोपाल भट / Abhay G. Bhatt
प्रमुख / Head
भारतीय सांख्यिकीय संस्थान, दिल्ली केन्द्र
Indian Statistical Institute, Delhi Centre
7, शहीद जीत सिंह सनसनवाल मार्ग,
7, Shaheed Jeet Singh Sansanwal Marg
नई दिल्ली-110016/ New Delhi-110016

309

Random Sampling For Testing Of EVMs Via VVPAT Slip verification

Report

by

ABHAY G. BHATT

Head, Indian Statistical Institute, Delhi Centre

&

RAJEEVA L. KARANDIKAR

Director, Chennai Mathematical Institute, Chennai

&

ONKAR PROSAD GHOSH, ISS

Dy. Director General (Social Statistics Division), CSO, MOSPI

March 2019

310

Contents

I Statistical Testing of EVMs - Sample Size 3

1 Introduction 3

2 Statistical Survey 5

2.1 Population of EVMs 6

2.2 Notations 7

2.3 Standard Error 7

3 Determination of sample size 10

3.1 Confidence Level 10

3.2 Margin of Error 11

3.3 Testing of Hypothesis 12

4 Optimal Sample Size 15

5 Further Analysis and Recommendations 15

6 Remarks on Implementation 19

II Appendix 22

A Common misconceptions and their clarifications 22

A.1 Sample size and sampling fractions 23

A.2 Isn't guarantee needed for each constituency? 25

A.3 Margins of error and Probability Distributions 27

B Some further tables and comments 28

C Python codes 34

311

C.1 Hypergeometric probabilities for zero defectives 34
C.2 Optimal sample sizes for different populations 35
C.3 Sample size cut-offs for different number of defectives 36

D Election Commission of India Letter 37

312

Part I

Statistical Testing of EVMs - Sample Size

1 Introduction

For the past several years, Electronic Voting Machines (EVM) are being used by the Election Commission of India (ECI) for the conduct of elections. However, recently, various stake-holders have raised doubts about the usage of these machines. One of the major arguments has been that the mechanism, by its very nature, is opaque in that there is no way to verify whether the electronic counts that the EVM gives out agrees with the actual candidate-wise count. To counter this argument, and for additional verifiability and transparency in the voting process, ECI has also deployed Voter Verifiable Paper Audit Trail (VVPAT) machines since 2013. Further, from June 2017, each EVM is attached to a VVPAT machine at 100% polling stations in all General and Bye elections to the Lok Sabha and State Legislative Assemblies. When a voter casts the vote, the VVPAT machine prints a slip from which the voter can immediately verify that the cast vote matches with the vote recorded by the VVPAT.

At the time of counting of votes, the VVPAT slips can be counted and this VVPAT paper slip count can be verified with the electronic count from the EVM machine. If the two counts match for all the candidates, then this will clearly indicate that every vote that was correctly recorded by the VVPAT machine was also being recorded correctly by the EVM. And this will work as a guarantee that the EVM is working correctly. Since each EVM is attached to a VVPAT machine, each EVM can be tested in this manner.

However, counting the paper slips manually has its own cost. Extra manpower and time will be needed for a complete count. It can be argued that the Election process is

an extremely sacrosanct process in any Democracy and hence the extra resources will be justified. At the same time, it is pertinent to note that even manual count will never be completely error free, and any error in the VVPAT slip count and consequent mismatch with EVM data on account of this human error will invariably be saddled on the EVM itself and create avoidable doubts on the credibility of the system.

The most logical and rational approach is the correct use of well-established Statistical Sampling Techniques, which will allow us to check that the sanctity of the EVM based election process is not disturbed – without having to check each EVM-VVPAT system. This is achieved by testing a certain number of randomly selected EVM-VVPAT systems.

With this in mind, and in order to further enhance the credibility and transparency of the EVM - VVPAT based election process, the Commission has already decided to undertake VVPAT slip verification in one randomly selected polling booth per Assembly Constituency (random sample). This involves, verifying the number of votes recorded in the VVPAT printed slips with the corresponding electronic count for that machine in the randomly selected polling booth.[1]

A natural question then arises: 'what is the reasonable sample size of Polling stations where VVPAT slip verification must be carried out to achieve the objective of establishing the credibility and integrity of the present system?' Various stakeholders have suggested that the size of this random sample should be a significant proportion of the actual EVMs being used with the requests ranging from 10% to 50%. However, it is necessary to analyse and examine these requests on the touchstone of sound and scientific statistical theory.

In this context, it also necessary to understand that internationally, statistical theory is widely used in almost every conceivable sphere of human endeavour to arrive at a reasonable sample size for undertaking testing, authentication, validation or quality control of a trait or

[1] It is pertinent to note that ECI has already undertaken 1521 such EVM-VVPAT slip verifications. In each of these 1521 randomly sampled EVMs, not a single mismatch of votes has been found. This data already suggests that the statistical confidence in the EVM-VVPAT systems should be extremely high. As more and more data gets collected in future elections and if the number of defective EVMs remains zero or close to zero, the statistical confidence in this process will keep getting enhanced.

313A

set of attributes within a given population of goods, products or services. Especially in large populations, sample survey or sample study is the only rational, practical and feasible option to examine any attribute as 100% checks are virtually impossible to undertake or implement due to a variety of reasons and complications. Hence, a sample, if chosen randomly as per the scientific statistical applications can provide a reasonably accurate depiction of the trait or quality that is sought to be examined.

If the level of 'reasonable confidence' is specified then Statistical Theory can be used to decide on the sample size.

ECI has asked us to suggest a basis for deciding upon a minimum sample size so as to be very sure that the proportion of defectives, if any, is negligible, and to do so with a very high level of confidence. (Letter from ECI dated 10th August 2018 is appended at the end of this report in Appendix D).

Our recommendation:

We recommend that a random sample of the Electronic Voting Machines of size 479 be drawn from the population of all the EVMs that have been used in that set of elections. 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%.

2 Statistical Survey

Before embarking on any statistical study, it is important to clearly set out the goals for the study. While holding an election involves several steps and processes, this particular study has the limited scope of testing for the efficacy of using EVMs for the election. This is to be done by drawing a random sample from all the EVMs that are being used in the election.

In other words, the current exercise is to decide on an optimal sample size, which will ensure with a very high level of confidence that the EVMs used in the election are working

as they are supposed to do - namely correctly recording and counting the votes cast through the machines.

2.1 Population of EVMs

The first question that arises is: 'What is the Population of EVMs from which the random sample is to be drawn?' Is it all EVMs in a constituency, or in a State or the Whole country or actually all the EVMs owned by ECI? To answer this question, we first need to ponder over the level at which the (statistical) guarantee is required.

As noted earlier, the basic unit of this study is the EVM machine. We want to check the working of the EVM through VVPAT counts. It should be noted that all the EVMs/VVPATs are similar - having come up through the same process and having gone through similar tests. Every EVM machine will be connected to a VVPAT machine. Before the actual voting starts, each EVM/VVPAT goes through multiple rounds of testing and verification with established protocol carried out in the presence of agents of all candidates in that constituency. Thus prima facie, ECI is confident that EVMs are robust, credible and non-tamperable. It should be further noted that there is no systematic bias in allotting particular EVM machines to particular states/constituencies/booths.

Ideally the entire population of EVMs should be taken as a unit since they are manufactured, stored, transported, undergo FLC and mock polls in exactly the same fashion. However, since the purpose of this sampling is to detect if there is a presence of 'significant' number of defective EVMs hence it is vital that any corrective action (say counting of more or all VVPAT slips) be taken up before announcement of results.

Thus, in our opinion, we should take as a unit all the elections that are announced on a given day and typically counted on the same day. This could be assembly elections in few states along with some bye elections, or Lok Sabha election along with some bye elections and assembly elections in few states. We will refer to this as *one set of elections*. Thus we suggest that a set be taken as the level at which the (statistical) guarantee is required.
We summarise the above discussion.

Since the Statistical Unit of study is the EVM, the Population will consist of all

EVMs being used in a particular set of elections for which counting is done at the same time.

2.2 Notations

To facilitate the discussion that follows, we introduce some notation.

(i) The **Population** consists of all the EVMs used in a given set of elections which is the same as the total number of polling stations. (If in a polling station, more than one EVM is used due to replacement of EVMs, we treat all the EVMs used in that polling station as a single EVM for the purposes of this study.)

(ii) Let **N** denote the size of the population.

(iii) By **P** we will denote the actual, but unknown, proportion of of *defective* EVMs, i.e. the EVMs for which there is a mismatch between the electronic count and the count through the VVPAT slip.

(iv) A **Random Sample** of size **n** is to be drawn from the **N** units in the population. i.e. **n** polling stations are to be randomly chosen for VVPAT slip verification.

(v) The proportion of defective EVMs in the sample will be denoted by $\hat{\mathbf{p}}$.

2.3 Standard Error

The *standard error* of the estimate obtained through the sample survey indicates the extent to which the sample proportion $\hat{\mathbf{p}}$ and the true population proportion **P** may differ. Smaller the standard error, greater is the confidence in the sample proportion $\hat{\mathbf{p}}$ being close to the population proportion **P**. Thus we want to make the standard error as small as possible.[2]

As a thumb rule, the chances that $\hat{\mathbf{p}}$ and **P** differ by more than 2 times the standard error is roughly 5% (or 1 chance in 20), while the chances that the two differ by more than

[2]The standard error will be zero, or the confidence will be 100% only when $\mathbf{n} = \mathbf{N}$. In practice, the target is to bring the standard error below a specified upper bound.

316

3 times the standard error is very small, about 0.1% (or 1 chance in 1000). The chance that the estimate differs from the true but unknown value by 4 times the standard error is about 0.006% or about 1 in 15,000.

The standard error is used to estimate the precision actually attained in a survey that has been completed and also to estimate the size of the sample needed in a survey that is being planned. (See [1])

If the sampling is done *with replacement*, the *standard error* is given by

$$\sqrt{\frac{P(1-P)}{n}}. \tag{1}$$

This depends on the unknown proportion P but not on the population size N.

However, when the sampling is done *without replacement*, the standard error is somewhat less[3] than when it is done with replacement and is given by[4]

$$\sqrt{\frac{P(1-P)}{n}}\sqrt{\frac{N-n}{N-1}}. \tag{2}$$

The additional factor, namely $\sqrt{\frac{N-n}{N-1}}$ (called the finite population correction) has a minimal effect on the precision of the sample estimate. This is so since the fpc is close to 1 unless n is fairly close to N. To emphasize this point further, we quote from [1] (read in the current context).

[3]Since the aim is to restrict the standard error to a given upper bound, using (1) instead of (2) will be more conservative.

[4]When the sample size is infinity, the two formulae become identical. As such, sampling with replacement may be thought of as sampling when the population size is infinite

Provided that the sampling fraction $\mathbf{n/N}$ *remains low, these factors are close to unity, and the size of the population as such has no direct effect on the standard error of the sample proportion* $\hat{\mathbf{p}}$. *For instance, if the variance is same in the two populations (or equivalently,* $\mathbf{P}$ *is the same in the two populations), a sample of 500 from a population of 2,000,000 gives almost as precise an estimate of* $\mathbf{P}$ *as a sample of 500 from a population of 10,000. Persons unfamiliar with sampling often find this result difficult to believe and, indeed, it is remarkable. To them it is intuitively obvious that if information has been obtained about only a very small fraction of the population, it cannot be accurate. It is instructive for the reader to consider why this point of view is erroneous.*

We illustrate the point through the following table which gives the value of the standard error for a random sample of size $\mathbf{n} = 500$ drawn from populations of sizes 10,000 and 200,000 (Rows 2 and 3 respectively) and compare it with Row 1 which gives the standard error when $\mathbf{N}$ is infinite (or when sampling is done with replacement). In any of the columns corresponding to $\mathbf{P} = 0.01, 0.02$ or 0.05 very little deviation is observed in the three values.

N	fpc	P = 0.01	P = 0.02	P = 0.05
∞	1	0.00444	0.00626	0.00974
10000	0.9747	0.00434	0.00610	0.00950
200000	0.9987	0.00444	0.00625	0.00973

Table 1: For a fixed $\mathbf{n}$, value of Standard error for different $\mathbf{P}$ does not change much with $\mathbf{N}$

The authors in [1] further suggest that whenever the sampling fraction is less than 5% the finite population correction can be ignored. Thus it is recommended that equation (1) be used for calculation of the sampling error even when the sampling is done without replacement. *This formula yields an upper bound of the error for any population size.*

It should be noted that the upper bound (1) depends only on sample size $\mathbf{n}$ and not on sampling fraction $\frac{\mathbf{n}}{\mathbf{N}}$. In summary, we reiterate the following.

The sampling fraction $\frac{\mathbf{n}}{\mathbf{N}}$ **plays a very marginal role in Sampling theory.** For

318

the calculation of the standard error what matters is the actual absolute value of the sample size n and not in relation to the population size N.

3 Determination of sample size

Let us come to the main question, namely, determination of the sample size **n**.

As commented earlier, if the entire population is tested, or sampled (so that $\mathbf{n} = \mathbf{N}$), the standard error will always be zero. The goal of sampling theory is to make inferences about the quantity **P** without having to sample every unit in the population, but at the same time, with reasonable confidence.

In equation (1) of the previous section, we saw that there is a direct connection among the three quantities - the standard error, the parameter value **P**, and the sample size **n**. Formula (1) gives us the error in the estimate when using a simple random sample of size **n**. We can put an 'allowable' bound on the error and may hope to use (1) to calculate **n**. However, this relation is not directly usable since the parameter value **P** is itself unknown.

So instead of putting a bound on standard error, we fix a reasonable *confidence level* and an allowable *margin of error* in order to estimate the sample size **n**.

3.1 Confidence Level

It is customary in Statistical surveys to use a confidence level of 95% or 99%. This number 95% can be interpreted as follows. If a similar survey is conducted 100 times, then 95 out of those 100 surveys would give a correct inference or that there is a 1 in 20 chance of the survey giving erroneous inference.

Typically, in large sample surveys[5], a 95% confidence level also corresponds to the statement that the sample estimate $\hat{\mathbf{p}}$ and true unknown proportion **P** differing by more than 2 times the standard error has a roughly 5% chance (or 1 chance in 20). This error probability ($\alpha = 0.05$) is the probability that an observation from a Normally distributed random vari-

[5]Normal Distribution approximations are valid in large sample surveys

able with variance σ^2 differs from the mean by 2σ. This may be referred to as a '2σ level'. The corresponding confidence level is given by $100(1-\alpha)\% = 95\%$.

However, it is our belief that a 95% confidence level, or even 99% confidence level is too low for the current situation. We instead suggest a '4σ confidence level'. The corresponding error probability is about $\alpha = 0.00006334248$ and corresponds to 99.993665752% confidence level. This is high enough so that if we have 15000 such different random samples, one for each election, each sample being of size $\mathbf{n}$, then on the average, only about 1 of these 15000 samples are likely to give a result which is quite different from the true situation. *Since India has seen only around 200 elections since independence, this confidence level seems more than reasonable.*

In summary, **We will target a 4σ level or 99.993665752% confidence level.**

3.2 Margin of Error

In statistical theory, it is imperative that an acceptable Margin of Error is chosen in the population, which is unlikely to affect the final outcome. It must be appreciated, in all applications of Sampling theory, a reasonable margin of error is necessary as any sample, howsoever randomly chosen, cannot be the exact replica of the population as a whole and hence, the margin of error. In this context of sampling of EVMs, in our view 2% or 0.02 margin of error seems appropriate.

We will hence fix the margin of error to be 2% or 0.02.

The aim then would be to choose a size $\mathbf{n}$ such that in a random sample of size $\mathbf{n}$ the proportion of defectives can be assured to be less than 2%, with high degree of confidence. Or in other words, if the actual proportion of defectives in the population is 2% or more then the probability that we do not observe any defective EVM in a random sample of size $\mathbf{n}$ should be very small.

320

3.3 Testing of Hypothesis

In simple words, we seek a sample size n such that if the true proportion of defective **P** is 0.02 or more, the chance that we observe zero defectives in the sample of size **n** is less than $\alpha = 0.00006334248$. Thus, if we do observe zero defectives, we can conclude with very high confidence that the true proportion of defective **P** is less than 0.02.

This can be put in the statistical framework of testing of hypothesis as follows. The statement that we wish to refute, namely that *the proportion of defectives is 2% or more* is identified as the null hypothesis. The alternate hypothesis being that *the proportion of defectives is strictly less than 2%*. The alternate hypothesis will be tested against the null hypothesis at the level of significance $\alpha = 0.00006334248$.[6]

Statistical Analysis

To briefly explain the statistical analysis involved, we introduce some notation. Let X_n denote the number of defects observed in a random sample of size **n** out of a population of size N. We seek to find the minimum sample size n such that the observation $X_n = 0$ is in the critical region.[7] In other words, when the null hypothesis is true, the probability that the observation values lie in the critical region should be smaller than our chosen level of significance $\alpha = 0.00006334248$.[8] Then, if in an experiment, we actually observe $X_n = 0$, we can reject the null hypothesis and conclude with high confidence (equal to $100(1-\alpha)\% = 99.993665752\%$ confidence) that the proportion of defectives in the population is strictly less than 2%.

The probability distribution of X_n can be computed using first principles and is taught in a course on elementary probability : the probability of observing zero defectives in a sample of size **n** from a population of size **N** when the population contains **M** defectives is equal to

[6] Drawing analogy with legal parlance, the 'burden of proof' is on the alternate hypothesis. For the alternate hypothesis to be accepted, and the null hypothesis to be rejected, there needs to be sufficient statistical evidence as quantified by the level of significance. $\alpha = 0.00006334248$ or confidence level 99.993665752%.

[7] In a test of hypothesis problem, the set of values of the observation for which the null hypothesis is rejected is called *the critical region*.

[8] This probability is called the p-value corresponding to $X_n = 0$.

the ratio with product of number of ways of choosing k defectives from $\mathbf{M}$ defectives in the population and number of ways of choosing $n-k$ non-defectives from $\mathbf{N}-\mathbf{M}$ non-defectives in the population as numerator and number of ways of choosing a sample of size $\mathbf{n}$ from a population of size $\mathbf{N}$ as denominator.

$$\text{Prob}\ (X_n = k) = \frac{\binom{\mathbf{M}}{k}\binom{\mathbf{N}-\mathbf{M}}{n-k}}{\binom{\mathbf{N}}{n}} \tag{3}$$

This is known as the Hypergeometric distribution.

Thus, the probability of observing zero defectives in a sample of size n is

$$\text{Prob}\ (X_n = 0) = \frac{\binom{\mathbf{M}}{0}\binom{\mathbf{N}-\mathbf{M}}{n}}{\binom{\mathbf{N}}{n}} \tag{4}$$

For small values of $\mathbf{N}$ this can be exactly computed by hand whereas for larger values, the exact computation can be done via a python programme.

For a given population size N and sample size n, the table 2 gives probability of observing zero defectives when the population has 2 % defective objects:

The python code that generates this table is enclosed as appendix C.1.

As we can see, the probability changes as we move across columns but does not change much when we move down rows, specially there is very little difference when we go from population size 50000 to 50000000. Once again this table illustrates that the **sample size** is important and not the **sampling fraction** when population size is large.

Returning to our problem, for a given $\mathbf{N}$ we are seeking the minimum value of n for which the p-value (the probability under the Null Hypothesis that the defectives are 2% or more) of observing zero defectives is, less than $\alpha = 0.00006334248$.

Thus for a given $\mathbf{N}$ we look for minimum n such that

$$\text{Prob}\ (X_n = 0) = \frac{\binom{\mathbf{M}}{0}\binom{\mathbf{N}-\mathbf{M}}{n}}{\binom{\mathbf{N}}{n}} \leq \alpha = 0.00006334248 \tag{5}$$

with $\mathbf{M} = 0.02 * \mathbf{N}$.

Table 3 below gives the minimum sample size n required corresponding to different population sizes $\mathbf{N}$ so that if a sample of size n shows no defective, we can be convinced that the defectives in the population are less than 2%.

322

N↓ n→	200	250	300	350	400	450	500
1000	0.013800	0.003991	0.001058	0.000254	0.000054	0.000010	0.000002
2000	0.015752	0.005188	0.001654	0.000509	0.000151	0.000043	0.000012
3000	0.016377	0.005593	0.001872	0.000614	0.000197	0.000062	0.000019
4000	0.016685	0.005796	0.001985	0.000670	0.000223	0.000073	0.000023
5000	0.016868	0.005918	0.002053	0.000704	0.000239	0.000080	0.000026
10000	0.017230	0.006161	0.002192	0.000775	0.000273	0.000095	0.000033
20000	0.017410	0.006283	0.002262	0.000812	0.000291	0.000104	0.000037
30000	0.017469	0.006324	0.002285	0.000824	0.000297	0.000107	0.000038
40000	0.017499	0.006344	0.002297	0.000831	0.000300	0.000108	0.000039
50000	0.017517	0.006356	0.002304	0.000834	0.000302	0.000109	0.000039
100000	0.017552	0.006381	0.002318	0.000842	0.000306	0.000111	0.000040
500000	0.017581	0.006400	0.002330	0.000848	0.000309	0.000112	0.000041
1000000	0.017584	0.006403	0.002331	0.000849	0.000309	0.000112	0.000041
50000000	0.017588	0.006405	0.002332	0.000849	0.000309	0.000113	0.000041

Table 2: Probability of observing zero defective in a sample size n drawn from population size N containing 2 percent defectives.

323

The python code that generates this table is enclosed as appendix C.2.

Finally, as can be seen from this Table, **a sample size of 479 will be sufficient for any population.**

4 Optimal Sample Size

On the basis of the Analysis presented above, it is recommended that after the voting process is over, a random sample of the Electronic Voting Machines of size 479 be drawn from the population of all the EVMs that have been used in that set of elections and that each of the selected machines be tested by checking the electronic count with the VVPAT slip count. 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%.

This, in effect will give a very high statistical guarantee that the sanctity of the election process is not disturbed by the use of EVMs.

We once again clarify the following. The optimal sample size suggested above will guarantee that the margin of error is capped at 2% with an extremely high confidence. Further, while a larger sample will increase the statistical confidence in the EVM's, the gain is not proportionate to increase in sample size.

5 Further Analysis and Recommendations

We recall that the optimal sample size of 479 was determined by finding the smallest n satisfying that observing "no defectives in the chosen sample when the actual proportion of defectives in the population is equal to or more than 2%" has probability less than the significance level $\alpha = 0.00006334248$.

However, it is also possible that the actual proportion of defectives in the population is less than 2% and yet, one or more defectives are present amongst the sampled EVMs. This probability, though extremely small is still positive. For example, the probability that 1

324

population size	required sample size	population size	required sample size
500	308	1000	380
1500	410	2000	426
2500	436	3000	443
3500	447	4000	451
4500	454	5000	457
6000	460	7000	463
8000	465	9000	466
10000	468	20000	473
30000	475	40000	476
50000	477	100000	478
500000	479	50000000	479

Table 3: Sample size required from population size N so that p-value is less than $\alpha = 0.00006334248$.

defective EVM is observed when the actual proportion is 2% is 0.000619.

A natural question then arises: If some defectives are observed in the sample, what should be the further course of action? To answer this question, and at the cost of repetition, we reiterate the statistical conclusion in such a scenario. Using terminology introduced earlier, we can say that

> If one or more defective EVMs are observed in a sample of size 479, then the null hypothesis is NOT rejected at the 4σ level of significance ($\alpha = 0.00006334248$).

Recall that our null hypothesis is that the proportion of EVMs is more than 2% and that the burden of proof is on the alternate hypothesis and needs to have observational evidence to the tune of 99.993665752% confidence. While observing one defective EVM out of 479 sampled EVMs will fail this 'burden of proof' the evidence is not strong enough for the other side either. In other words, even when one defective is observed, the null hypothesis is still rejected with a very high confidence (of approximately, 99.938%). However, this is less confidence that what we set out with.

While observation of a few defective EVMs will raise questions about whether the pre-decided margin of error is maintained, it does not automatically condemn all EVMs as defective. In such a scenario, it makes sense to try and gather more evidence which will tilt the balance one way or another. Of course, in doing so we neither want to increase the allowable margin of error (2%) nor to reduce the confidence level (99.993665752%).

Hereunder, we suggest a statistically valid sequential approach. ECI can seek an additional sample of suitable size. If no additional defectives are found, we can still conclude that the proportion of defectives is less than 2% with the same high confidence. This additional number or additional sample size is 128. To clarify, if in a total sample of 607, we observe only 1 defective, we can still conclude with high confidence (equal to $1 - 0.00006334248$) that the proportion of defectives is less than 2%. However, if larger number of defectives are found (as further elaborated below) then the conclusion would be that more than 2% of EVMs are defective.

326

In Table 4 we give, for different sample sizes, the cut-off for number of defectives observed which still gives us high confidence that the total number of defectives in the population is less than 2 percent.The python code for generating this table 4 is given in appendix C.3.

Here are our step-wise recommendations.

1. If we observe 1 defective in 479 draw an additional sample of size 128 and check number of defectives ($\mathbf{n} = 479 + 128 = 607$).

2. If no defective is observed in the additional 128, making it 1 defective in sample size 607, reject null hypothesis and conclude that the proportion of defectives is less then 2% with high confidence.

3. If 1 defective is observed in the additional 128, making it 2 defectives in sample size 607, take an additional sample of 110 making the total 717.

4. If no defective is observed in the additional 110, making it 2 defective in sample size 717, reject null hypothesis and conclude that the proportion of defectives is less then 2% with high confidence.

5. Likewise continue sampling and at any stage, if number of defectives is less than the number in the table given below (Table 4 on page 20) corresponding to the sample size, reject null hypothesis and conclude that the proportion of defectives is less then 2% with high confidence.

6. If at any stage of the number of observed defectives exceeds 50, the conclusion would be that EVMs are faulty or defect prone and ECI has to take a call on how to deal with the situation

For example, if we observe 1 defective in 479, and 2 defectives in additional sample of 128 making it 3 out of 607, we take an additional sample of 210, making it 817. If no more defectives are observed making it 3 out of 817, we reject null hypothesis and conclude that the proportion of defectives is less then 2% with high confidence.

327

Note that our earlier analysis was based on the critical region or the rejection region of 'no defectives observed'. In other words, if the observed sample falls in this critical region then the null hypothesis is rejected in favour of the alternative hypothesis. The optimal sample size of 479 was based on this critical region.

If, instead, we had done the statistical analysis of section 3 with the critical region being 'number of defectives observed is at most one', our optimal sample size would have been 607. Similarly, for a critical region of 'number of defectives observed is at most three' the optimal sample size would be 817. And so on. Other entries in Table 4 may also be interpreted in this manner.

To continue our narrative, if in a sample of size 2000 we observe only 17 defectives we can still conclude that percentage of defectives is less than 2% with a confidence of 99.993665752%.

If at any stage if the number of observed defectives exceeds 50, the conclusion would be that EVMs are faulty or defect prone and ECI has to take a call on how to deal with the situation.

6 Remarks on Implementation

In our analysis of the previous section, while deciding on the optimal sample size **n**, we have assumed that the sample is going to be a random sample drawn from the population of EVMs. This is indeed a crucial assumption and while implementing the recommendations, sufficient care should be taken to ensure this. For the sake of completeness, we note that *a random sample is one where each unit in the population has the same chance or probability of getting selected in the sample as any other unit*[9].

Our analysis presented earlier suggests that the optimal sample size for a random sample is 479. In any such random sample of size, it is possible that no EVM is chosen from some Assembly segments while some other Assembly segments may have more than one representative EVM in the sample. This is a perfectly valid and natural statistical scenario.

[9]There are standard and easy to implement methods for drawing a random sample

328

Sample Size n	Number of defectives	Sample Size n	Number of defectives	Sample Size n	Number of defectives
479 - 606	0	607 - 716	1	717 - 816	2
817 - 910	3	911 - 1000	4	1001 - 1087	5
1088 - 1171	6	1172 - 1253	7	1254 - 1334	8
1335 - 1413	9	1414 - 1491	10	1492 - 1567	11
1568 - 1643	12	1644 - 1717	13	1718 - 1791	14
1792 - 1865	15	1866 - 1937	16	1938 - 2009	17
2010 - 2080	18	2081 - 2151	19	2152 - 2221	20
2222 - 2291	21	2292 - 2361	22	2362 - 2430	23
2431 - 2498	24	2499 - 2567	25	2568 - 2635	26
2636 - 2702	27	2703 - 2770	28	2771 - 2837	29
2838 - 2904	30	2905 - 2970	31	2971 - 3037	32
3038 - 3103	33	3104 - 3169	34	3170 - 3234	35
3235 - 3300	36	3301 - 3365	37	3366 - 3430	38
3431 - 3495	39	3496 - 3559	40	3560 - 3624	41
3625 - 3688	42	3689 - 3752	43	3753 - 3816	44
3817 - 3880	45	3881 - 3944	46	3945 - 4008	47
4009 - 4071	48	4072 - 4134	49	4135 - 4197	50

Table 4: Sample sizes and corresponding cut-offs for number of defectives observed which still gives us 99.993665752% confidence that the proportion of defectives in the population is less than 2 percent.

329

However, in the past few elections, ECI has been randomly choosing one EVM from among the polling stations in each Assembly Segment for verification with the VVPAT slip counts. The practice can still be continued along with following the recommendations in this report of drawing a random sample of size 479.

References

[1] (1977) WILLIAM G. COCHRAN, *Sampling Techniques*, Wiley Eastern Ltd.

330

Part II

Appendix

A Common misconceptions and their clarifications

In the first part of the report, we have given a self-contained and reasoned write-up about the choice of the optimal sample size for testing EVM counts with VVPAT slip counts. Nevertheless, there are some common misconceptions about the role of Statistics. Or sometimes there are question marks about what Statistics can achieve. Or finally, sometimes there are queries about the interpretation of Statistics or about the way it is used in a given situation.

In this Appendix section, we have tried to address some of the possible issues with the hope of clarifying them. We will largely restrict our attention to the problem at hand, viz., finding an optimal sample size for testing of the EVMs used in Indian elections. However, we would like to emphasize that Statistics is a well established Mathematical Science which is used all over the world in many different aspects of life - from the mundane, say, pricing of soap or deciding frequency of trains to the complex scenarios like predicting the weather. Even DNA evidence which can decide guilt or innocence of an accused uses Statistics. It is a Science which 'quantifies uncertainty' while dealing with large numbers. For example, while it is impossible to predict with certainty whether the next toss of a coin will end in a Heads or a Tails, Statistics will be able to predict with a fair amount of confidence that out of any 100 tosses, about 50 are going to be Heads. Several leading Indian Statisticians have contributed immensely to the development of the subject over the last century.

Some of the common questions that are generally asked can be broadly enumerated as follows.

1. How can a sample of a few hundred be adequate in making inferences about lakhs of individuals? The sample size should at least be some fixed percentage (10% or 20% etc.) of the total population.

331

2. While testing for EVMs in elections, what is the level at which statistical guarantee should be sought? Should it be at the constituency level or state level or for the entire country?

3. Using ready reckoners, which are widely available on the web, for determining sample sizes gives very different answers. The suggested sample size, in fact, gives very high margins of errors.

We will try and answer these queries in a bid to clarify all misconceptions.

A.1 Sample size and sampling fractions

A general perception is that a small sample will not be able to make any valid inference about a large population. Several individuals have in fact suggested that ECI should sample a certain minimum percentage of EVM-VVPAT systems and verify the electronic counts with the slip counts for ensuring that the EVMs are not defective. The suggested percentage of EVMs to be sampled varies from 10% to 50%.

This, of course is completely erroneous. To begin with it is noted that any of the suggested figures, whether it is 10% or 30% or 50%, has no statistical basis whatsoever. Not only do the numbers have no sanctity, it is further pointed out that the notion of determining the sample size as a proportion of the population size has no statistical basis. In fact, the accuracy of the results got by a sampling procedure mainly depends on the 'absolute sample size' and not on 'the sample size as a percentage of the population size'. While non-intuitive, this is a standard statistical result and is well validated in all standard books on Sampling Theory. We quote below from one such standard book [1] wherein the sampling is to be done for finding the proportion of defective units in a population. This also appears on page 9 of this report, but is reproduced here for a general reader.

For instance, if the proportion of defectives P is the same in the two populations, a sample of 500 from a population of 200,000 gives almost as precise an estimate of P as a sample of 500 from a population of 10,000. Persons unfamiliar with sampling often find this result difficult to believe and, indeed, it is remarkable. To them it is intuitively obvious that if information has been obtained about only a very small fraction of the population, it cannot be accurate. It is instructive for the reader to consider why this point of view is erroneous.

In Statistics, whenever inference is drawn on the basis of a sample, by estimating a certain quantity, the possible error in the sample estimate is measured. This sampling error - or standard error - is important in that it tells us how close is the sample estimate to the population value. The bigger the sample size **n**, the smaller will be the standard error.[10] However, the sampling fraction **n/N** plays an insignificant role in the calculation of the standard error. Table 1 (page 9) illustrates this point.

On the other hand, the following table shows that for the standard error **P** = 0.02 and a fixed sampling fraction **n/N** = 20% the standard error changes drastically with the population size **N**.

N	**n**	Std. error
500	100	0.0125
10000	2000	0.0028
200000	40000	0.0006

Table 5: For a fixed **P** and fixed sampling fraction, value of Standard error changes with **N**

The same phenomenon will be true for any other value of sampling fraction or for any other value of **P**.

In a related query, there is a suggestion that the counting and cross validation of VVPATs is essential in interest of transparency as also for public scrutiny without any special expert or technical knowledge. However, we would like to point out that expert knowledge is needed only in the determination of the sample size of the EVMs for cross validation with VVPAT

[10]See equations (1) – (2) on page 8 and the discussion there.

counts. In fact, non-use of expert knowledge is likely to increase the doubts in the minds of public.

A.2 Isn't guarantee needed for each constituency?

The Election Commission Of India had announced that the VVPAT slip count would be checked with the EVM count at one randomly selected polling booth in each constituency. Several parties have questioned the wisdom of this step. The main criticism is that a sample of size 1, will give extremley high margin of errors and does not make sense.

We have explained in Section 2.1 as to why we suggest choosing, for this statistical study, the population of all EVMs being used in a set of elections. We repeat the same here.

There is no difference between EVMs used in one constituency and another. Further,

- All EVMs have similar design.
- They all go through the same tests before they are despatched as well as in the field.
- The order in which candidates appear is based on their names, alphabetically arranged, and not on their party, resulting in different buttons on the EVM being assigned to a political party in different constituencies.
- There is no systematic bias in allotting particular EVM machines to particular states, constituencies or booths. In fact allotment to a constituency and then to a booth is done through a two stage randomisation.

Also, this study is concerned with the efficacy of the EVMs being used in the election. In particular, the sample is to be drawn to check that the proportion of defective EVMs, if any, is not large enough. Note here that the term defective is being used for an EVM for which the electronic count does not match with the paper count from the VVPAT machine.

As far as the EVM machine is concerned, the only thing that matters, is to check that when a particular button is pressed, it gets recorded correctly. On this count, it does not make any difference as to where was the machine being used - in which constituency, which state.

In fact, there is also a contention that various polling stations in a constituency are not similar and the sample drawn may not be truly representative of the constituency as a whole. And hence, it is also desirable that a stratified sampling be performed with a random sample of one or more polling stations drawn from each of the following 'strata': urban (middle/upper class); urban (poor/slums); semi-urban; rural; Dalits/minorities; remote hilly/desert/forest areas; voter turnout - heavy, moderate or low etc.

As explained above, this does not make any statistical sense. It would seem that the study about testing about the efficacy of EVM's is being confused with the actual election. Indeed, if the idea is to determine which candidate is to win - but to do so only through a suitably chosen sample, then definitely employing a 'stratified' sampling scheme makes sense since a-priori, it may be rationally argued that the population - in this case, human population - in different strata may exhibit different preferences for candidates.

However, it is inconceivable that a machine, an EVM, will change its behaviour just because it is assigned to a polling station in a urban, rural, desert, hilly, forest or any other region or one where more voting or less voting takes place. As such, there is no reason for stratification using any of the above mentioned criteria.

In fact, asking for a 'reasonable' sample size for each constituency is also subsuming the assumption that each constituency should be considered as a separate 'stratum'. Once again while the human population in different constituencies might exhibit different voting behaviour, the EVM population will hardly do so. Even the number of candidates in any constituency, whether it is 2 or 20 or any other number, will also have no effect on the working of the EVM. - hence stratification using each constituency as a stratum is also completely uncalled for.

At this point, it is also pertinent to note, that when drawing a random sample of a particular sample size, it is quite possible that some constituencies might go unrepresented in a sample while more than one EVM is chosen from some other constituencies. Statistically, this scenario is perfectly fine, and does not make any difference to the inference drawn from the sample.

Having said that, however, if ECI, for administrative reasons, decides to draw the required

sample by choosing one EVM randomly from each constituency, as it is currently doing, that is also ok, though not necessary as long as a minimum sample of 479 EVMs is randomly drawn from the entire population of EVMs being counted on the same day across all constituencies and states.

Finally, we would also like to point out here that most critiques, when putting forth a point about the sampling procedure, suggest a confidence level of 95% – 99%. However, given the undisputed importance of the exercise to be absolutely sure about the election process, we have worked with a much higher confidence level – namely 99.993665752% - which is quite a bit more than 99% level.

A.3 Margins of error and Probability Distributions

There are several 'ready reckoners' available on the web for use in statistical surveys. A couple of possible queries may arise due to a blind use of these ready recknoers. While these reckoners serve a purpose, a note of caution is warranted. Their use without understanding the underlying statistical principles involved may lead to erroneous conclusions.

For example, there is a mathematical relationship between the sample size **n**, the confidence level and the margin of error. So the ready reckoner will be able to calculate any of the above three quantities for given values of the other two. Typically the confidence level and the allowable margin of error is pre decided by the user and an optimal sample size can be calculated. However, the above mentioned mathematical relation or formula also has the unknown population proportion **P** in it. Since **P** is unknown, the ready reckoners give sample size that will work for all **P**. As such the sample size suggested using these ready reckoners will be very conservative.

Alternatively, if one tries to use the same reckoner in reverse order by plugging in the sample size suggested by us and the confidence level and to get the margin of error, it will once again lead to very erroneous readings. Here, we emphasize that in this report we have not used standard error based approach. This has been done in order to avoid use of the unknown **P** and instead we have used the formulation via testing of hypothesis, which is in line with the objective.

336

The distribution of defective EVMs is actually what is called as Hypergeometric distribution. See (3). Calculating these probabilities by hand or using calculators for large N was not easy. Hence it was customary to use either the Binomial probabilities or the Normal distribution probabilities for this purpose as an approximation. With the current computing power it is simple to actually calculate the hypergeometric probabilities which is what we have done in this report. The python code for these computations is enclosed and can be vetted by statistics and programming experts.

B Some further tables and comments

In the main part of the report, we have worked with a 4σ confidence level and a margin of error of 2%. In subsections 3.1 – 3.2, we have also given reasons for the basis of our choices. It is our belief that the values chosen by us are good enough to ensure with an extremely high statistical confidence that the proportion of defective EVMs, if any is small so that the sanctity of the election process is maintained. Once these two inputs are fixed, we can find the optimal sample size based on the analysis of Section 4. Table 4 (on page 20) summarises our recommendations for these two pre-fixed inputs.

If the allowable margin of error and/or the confidence level is changed, there would be corresponding changes in the associated sample size. We illustrate this in Table 6 wherein we give the sample sizes when the margin of error is 1% (the confidence level is kept at 99.993665752%). As can be seen from the Table, the minimum sample size recommended in this case is 962.

Remark: A note prepared by an ex-IAS officer and submitted to ECI also contains tables based on the same methodology. The tables are prepared with margin of error of 1% but a lower confidence level of 99% and 99.9% respectively. In these tables sample sizes have also been suggested separately for different states and based on these, recommendations also an average number of EVMs per Assembly Constituency are given. While the calculations for the state wide recommendations are generally correct (with errors only in a few entries), pulling it down to the constituency level is not proper. As the sampling design changes so

337

Sample Size n	Number of defectives	Sample Size n	Number of defectives	Sample Size n	Number of defectives
962 - 1219	0	1220 - 1439	1	1440 - 1639	2
1640 - 1828	3	1829 - 2008	4	2009 - 2182	5
2183 - 2351	6	2352 - 2516	7	2517 - 2677	8
2678 - 2835	9	2836 - 2991	10	2992 - 3144	11
3145 - 3296	12	3297 - 3446	13	3447 - 3594	14
3595 - 3740	15	3741 - 3885	16	3886 - 4029	17
4030 - 4172	18	4173 - 4314	19	4315 - 4455	20
4456 - 4595	21	4596 - 4734	22	4735 - 4872	23
4873 - 5010	24	5011 - 5147	25	5148 - 5283	26
5284 - 5418	27	5419 - 5553	28	5554 - 5688	29
5689 - 5821	30	5822 - 5955	31	5956 - 6087	32
6088 - 6220	33	6221 - 6352	34	6353 - 6483	35
6484 - 6614	36	6615 - 6745	37	6746 - 6875	38
6876 - 7005	39	7006 - 7134	40	7135 - 7263	41
7264 - 7392	42	7393 - 7520	43	7521 - 7649	44
7650 - 7776	45	7777 - 7904	46	7905 - 8031	47
8032 - 8158	48	8159 - 8285	49	8286 - 8411	50

Table 6: Sample sizes and corresponding cut-offs for number of defectives observed which still gives us 99.993665752% confidence that the proportion of defectives in the population is less than 1 percent.

do the probability calculations based on which the sample size was calculated.

Moreover, it has been argued earlier in this report that sampling should be done from the population of ALL EVMs being used in a set of elections for which counting will take place simultaneously. As such the figures mentioned in the above mentioned Tables would be alright only when elections are being held in each state separately. For the sake of completeness, we have added two more tables. Table 7 below gives the optimal sample sizes[11] corresponding to confidence level $4\sigma = 99.993665752\%$ for 1% and 2% margin of error, when elections are held separately in each state.

State Name	Population Size (No. of EVMs)	Sample size **n** for Margin of Error	
		1%	2%
Sikkim	589	503	342
Mizoram	1164	678	396
Goa	1642	742	425
Nagaland	2194	806	438
Arunachal Pradesh	2562	818	439
Manipur	2794	837	446
Meghalaya	3082	845	448
Tripura	3174	847	448
Himachal Pradesh	7521	906	465
Jammu & Kashmir	10035	921	469
Uttarakhand	10854	925	469
Haryana	16357	938	472
Kerala	21498	945	475
Punjab	22615	943	474
Chattisgarh	23672	946	475

Continued on next page

[11] As the Population size for each state we have taken the same numbers as in the above mentioned note

339

State Name	Population Size (No. of EVMs)	Sample size **n** for Margin of Error	
		1%	2%
Jharkhand	24803	944	474
Assam	24890	947	475
Telangana	32574	950	476
Odisha	35959	951	476
Andhra Pradesh	39970	952	476
Gujrat	50128	954	477
Rajasthan	51796	955	477
Karnataka	56696	956	477
Bihar	65337	956	478
Madhya Pradesh	65341	956	478
Tamil Nadu	65616	956	477
West Bengal	77247	957	478
Maharashtra	91329	958	478
Uttar Pradesh	150000	960	478

Table 7: Optimal Sample sizes corresponding to confidence level $4\sigma = 99.993665752\%$ when elections are held in each state separately

Similarly, Table 8 on page 33 gives the optimal sample sizes when elections are held separately in each state corresponding to 1% margin of error for confidence levels 99.99% and 99.9% respectively.

340

State Name	Population Size (No. of EVMs)	Sample size **n** for Confidence Level	
		99.99%	99.9%
Sikkim	589	494	440
Mizoram	1164	658	541
Goa	1642	716	574
Nagaland	2194	776	613
Arunachal Pradesh	2562	786	616
Manipur	2794	804	628
Meghalaya	3082	811	631
Tripura	3174	812	632
Himachal Pradesh	906	865	659
Jammu & Kashmir	10035	879	667
Uttarakhand	10854	883	670
Haryana	16357	895	676
Kerala	21498	902	680
Punjab	22615	899	678
Chattisgarh	23672	902	680
Jharkhand	24803	900	678
Assam	24890	903	681
Telangana	32574	906	682
Odisha	35959	907	682
Andhra Pradesh	39970	908	683
Gujrat	50128	909	683
Rajasthan	51796	911	685
Karnataka	56696	911	685
Bihar	65337	911	685

Continued on next page

State Name	Population Size (No. of EVMs)	Sample size n for Confidence Level	
		99.99%	99.9%
Madhya Pradesh	65341	911	685
Tamil Nadu	65616	911	684
West Bengal	77247	912	685
Maharashtra	91329	913	685
Uttar Pradesh	150000	915	687

Table 8: Optimal Sample sizes corresponding to 1% margin of error when elections are held in each state separately

Further, the tables in the note also do not mention a line of action if one or more defective is observed in the sample. We have given a detailed sequential procedure along with the relevant sample sizes in cut-offs for different combinations of margin of error and confidence levels. (See Tables 4 and 6).

Finally, the note also goes on to suggest an additional sample size equivalent to 1% of all the EVMs being used in the elections in each state. This is done purportedly to detect presence of systematic error in the EVMs. No explanation is given as to how this additional sample will help in detecting systematic errors, and even if it does how has the number of 1% additional sample size being arrived at.

Firstly, a question of systematic error will arise only if a significant number of defectives are observed in the sample to begin with. Our earlier suggested sample size is big enough to detect the presence of defective EVMs - irrespective of whether the defect is due to random causes or due to systemic defects.

As such there is no need for this additional sample size at all. Moreover, as mentioned above, the suggestion of 1% additional sample is also completely arbitrary and has absolutely no statistical basis.

342

C Python codes

C.1 Hypergeometric probabilities for zero defectives

```
def binomlist(N, R):
    a=[1]
    for k in range(1, R):
        a.append((a[k-1]*(N-k+1))//k)
        assert((a[k-1]*(N-k+1))%k==0)
    return a

def zerodefectprob(n,d,s):
    m=1+(100-d)*n//100
    b=binomlist(n,s+1)
    c=binomlist(m,s+1)
    x=c[s]
    z=b[s]
    y=x/z
    return y


nn=[1000,2000,3000,4000,5000,10000,20000,30000,40000,50000,100000,
      500000,1000000,50000000]
ss=[200,250,300,350,400,450,500]
d=2
for n in nn :
    w=[n]
    for s in ss :
        x=zerodefectprob(n,d,s)
        print(n,s,"{:.6f}".format(x))
```

343

C.2 Optimal sample sizes for different populations

```
def binomlist(N, R):
    a=[1]
    for k in range(1, R):
        a.append((a[k-1]*(N-k+1))//k)
        return a

def prob(n,p,s,t):
    m=n*p//100
    k=n-m
    b=binomlist(n,s+1)
    c=binomlist(m,t+1)
    d=binomlist(k,s+1)
    ta=d[s]/b[s]
    f=[ta]
    g=[ta]
    for i in range(1,t+1):
        tx=c[i]*d[s-i]/b[s]
        f.append(tx)
        ta=ta+tx
        g.append(ta)
    return g[t]
#4sigma
pr=6.334248/100000
#3sigma
p=2
t=0
nn=[500,1000,1500,2000,2500,3000,3500,4000,4500,5000,6000,7000,8000,
    9000,10000,20000,30000,40000,50000,100000,500000,50000000]
for n  in nn:
    s=100
    a=prob(n,p,s,t)
    while(a>pr):
        s=s+1
        a=prob(n,p,s,t)
    print(n,s)
```

344

C.3 Sample size cut-offs for different number of defectives

```
def binomlist(N, R):
    a=[1]
    for k in range(1, R):
        a.append((a[k-1]*(N-k+1))//k)
    return a

def prob(n,p,s,t):
    m=n*p//100
    k=n-m
    b=binomlist(n,s+1)
    c=binomlist(m,t+1)
    d=binomlist(k,s+1)
    ta=d[s]/b[s]
    f=[ta]
    g=[ta]
    for i in range(1,t+1):
        tx=c[i]*d[s-i]/b[s]
        f.append(tx)
        ta=ta+tx
        g.append(ta)
    return g[t]
pr=6.334248/100000
p=2
n=10000000
s=1
u=1
t=1
for t in range(0,51):
    u=s
    v=t-1
    a=prob(n,p,s,t)
    while(a>pr):
        s=s+1
        a=prob(n,p,s,t)
        k=s-1
    if t>0 :
        print(u, " -  ",k," :  ",v," ")
```

345

D Election Commission of India Letter

ELECTION COMMISSION OF INDIA

NIRVACHAN SADAN, ASHOKA ROAD, NEW DELHI-110001

No.51/8/VVPAT-ISI/2018-EMS Dated: 1st August, 2018

To,

Prof Bhat,
Head, Indian Statistical Institute (Delhi Centre),
New Delhi.

Subject: **Mandatory verification of VVPAT slip count with electronic result during counting of votes in elections to the Parliament and State Legislative Assemblies: Statistical principles - regarding**

Sir,

With reference to the captioned subject and in continuation of the discussion during the meeting with Sh Sudeep Jain, Dy. Election Commissioner on 08.08.2018, I am directed to state that the Election Commission of India is Constitutionally mandated with direction, superintendence and control of elections to the Parliament and various State Legislative Assemblies in the country. Over the last two decades, the Commission has successfully conducted various general and bye elections through Electronic Voting Machines (EVMs) based voting and counting. Since 2013, the Commission has also deployed Voter Verifiable Paper Audit Trail (VVPAT) machines along with EVMs for additional verifiability and transparency in the voting process. The Commission is committed to 100% deployment of VVPATs with EVMs at all polling stations in all future elections to the Parliament and State Assemblies.

In order to further enhance the credibility and transparency of the EVM-VVPAT based election process, as also to address the demands of certain political parties regarding VVPAT paper trail counting, the Commission has already decided to undertake VVPAT slip verification of 1 (one) randomly selected polling station in each Assembly Constituency during the counting process. As a consequence of this decision, till date, VVPAT slip verification has already been done in respect of 843 polling stations across various States/UTs during the General and Bye election conducted during the last year. It is recorded with satisfaction that the slip verification has matched with the electronic count in all the cases.

However, there are intermittent demands from certain sections of the political firmament to increase the counting of VVPAT slips during every election and the request varies from 25% to 100% slip counting. As can be duly appreciated, there has to be a convincing logical rationale rooted, *inter alia*, in sound statistical foundation for examining

346

and processing such requests. The Commission, as always, is keen to engage and involve all the stakeholders in the various aspects of election management and adopts a constructive and collaborative approach in resolving and addressing various issues, including the present matter regarding VVPAT slip count.

Since, Indian Statistical Institute is the most notable and reputed national institution devoted to research, teaching and application of statistics and sampling knowledge in the country, the Commission considers it expedient and desirable that your cooperation and expertise is solicited in addressing the matter of VVPAT slip verification, being essentially a statistical issue. Your vast technical resources and domain expertise will be very useful and instrumental in systematically analysing the whole issue and arriving at mathematically sound, statistically robust and practically cogent solutions to the raging debate about the number/percentage of VVPAT slip counts to be undertaken during the elections.

In view of the same, it is requested that your kind convenience may please be conveyed for associating with the Commission and collaborating towards addressing the issues as elaborated above. Any additional information or supplementary material in the matter, if so desired, may please be indicated.

Thanking you,

Yours sincerely,

(NIKHIL KUMAR) 10/10/12
Director