

	A	B	C	D	E	F	G	
1	Calculations for Non-Detection Probability of Tampering, In a Constituency With 200 Voting Booths (With One EVM - VVPAT Pair In Each Booth, When VVPAT Counts Are Cross Checked With EVM Counts) (This is "Source Excel File-200 Booths" or "SEF-200 booths", Sheet-10) (Revised By Dr Ramesh Bellamkonda, 2019-02-10)							
2	No. of booths in constituency =		200			Assumed No of Booths Tampered =		10
3	Random Cross Check No. (for VVPAT-EVM Counts)	Total No. of EVM-VVPAT Pairs in the pool that are yet to be cross checked	Absolute no. of EVMs Assumed to be tampered in the constituency	Absolute no. of non-tampered EVMs that remain, given that no tampered EVMs detected thus far	Probability of not detecting tampering of any EVM, in the particular random cross check of VVPAT-EVM counts	Probability of not detecting tampering of any EVM, in the cumulative random cross checks of VVPAT-EVM counts, till that point	Probability of not detecting tampering of any EVM, in the cumulative random cross checks of VVPAT-EVM counts, till that point, % age	
4	1	200	10	190	0.95	0.95	95.00%	
5	2	199	10	189	0.949748744	0.902261307	90.23%	
6	3	198	10	188	0.949494949	0.856692554	85.67%	
7	4	197	10	187	0.949238579	0.813205622	81.32%	
8	5	196	10	186	0.948979592	0.771715539	77.17%	
9	6	195	10	185	0.948717949	0.732140383	73.21%	
10	7	194	10	184	0.948453608	0.694401188	69.44%	
11	8	193	10	183	0.948186528	0.658421852	65.84%	
12	9	192	10	182	0.947916667	0.624129047	62.41%	
13	10	191	10	181	0.947643979	0.591452134	59.15%	
14	11	190	10	180	0.947368421	0.560323074	56.03%	
15	12	189	10	179	0.947089947	0.530676351	53.07%	
16	13	188	10	178	0.946808511	0.502448885	50.24%	
17	14	187	10	177	0.946524064	0.475579961	47.56%	
18	15	186	10	176	0.946236559	0.450011146	45.00%	
19	16	185	10	175	0.945945946	0.425686219	42.57%	
20	17	184	10	174	0.945652174	0.402551098	40.26%	
21	18	183	10	173	0.945355191	0.380553771	38.06%	
22	19	182	10	172	0.945054945	0.359644223	35.96%	
23	20	181	10	171	0.944751381	0.339774376	33.98%	
24	21	180	10	170	0.944444444	0.320898022	32.09%	
25	22	179	10	169	0.944134078	0.302970758	30.30%	
26	23	178	10	168	0.943820225	0.285949929	28.59%	
27	24	177	10	167	0.943502825	0.269794566	26.98%	
28	25	176	10	166	0.943181818	0.254465329	25.45%	
29	26	175	10	165	0.942857143	0.239924453	23.99%	
30	27	174	10	164	0.942528736	0.226135692	22.61%	
31	28	173	10	163	0.942196532	0.213064264	21.31%	
32	29	172	10	162	0.941860465	0.200676807	20.07%	
33	30	171	10	161	0.941520468	0.188941321	18.89%	
34	31	170	10	160	0.941176471	0.177827126	17.78%	
35	32	169	10	159	0.940828402	0.167304811	16.73%	
36	33	168	10	158	0.94047619	0.157346191	15.73%	
37	34	167	10	157	0.94011976	0.147924263	14.79%	
38	35	166	10	156	0.939759036	0.139013163	13.90%	
39	36	165	10	155	0.939393939	0.130588123	13.06%	
40	37	164	10	154	0.93902439	0.122625433	12.26%	
41	38	163	10	153	0.938650307	0.1151024	11.51%	
42	39	162	10	152	0.938271605	0.107997314	10.80%	
43	40	161	10	151	0.937888199	0.101289406	10.13%	
44	41	160	10	150	0.9375	0.094958818	9.50%	
45	42	159	10	149	0.937106918	0.088986565	8.90%	
46	43	158	10	148	0.936708861	0.083354504	8.34%	
47	44	157	10	147	0.936305732	0.0780453	7.80%	
48	45	156	10	146	0.935897436	0.073042396	7.30%	
49	46	155	10	145	0.935483871	0.068329984	6.83%	
50	47	154	10	144	0.935064935	0.063892972	6.39%	
51	48	153	10	143	0.934640523	0.05971696	5.97%	
52	49	152	10	142	0.934210526	0.055788213	5.58%	
53	50	151	10	141	0.933774834	0.052093629	5.21%	
54	51	150	10	140	0.933333333	0.048620721	4.86%	
55	52	149	10	139	0.932885906	0.045357585	4.54%	
56	53	148	10	138	0.932432432	0.042292883	4.23%	
57	54	147	10	137	0.931972789	0.039415817	3.94%	
58	55	146	10	136	0.931506849	0.036716103	3.67%	
59	56	145	10	135	0.931034483	0.034183958	3.42%	
60	57	144	10	134	0.930555556	0.031810072	3.18%	
61	58	143	10	133	0.93006993	0.029585592	2.96%	
62	59	142	10	132	0.929577465	0.027502099	2.75%	
63	60	141	10	131	0.929078014	0.025551596	2.56%	
64	61	140	10	130	0.928571429	0.023726482	2.37%	
65	62	139	10	129	0.928057554	0.022019541	2.20%	
66	63	138	10	128	0.927536232	0.020423922	2.04%	
67	64	137	10	127	0.927007299	0.018933124	1.89%	

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2	No. of booths in constituency =		200 Assumed No of Booths Tampered =			10	
3	Random Cross Check No. (for VVPAT-EVM Counts)	Total No. of EVM-VVPAT Pairs in the pool that are yet to be cross checked	Absolute no. of EVMs Assumed to be tampered in the constituency	Absolute no. of non-tampered EVMs that remain, given that no tampered EVMs detected thus far	Probability of not detecting tampering of any EVM, in the particular random cross check of VVPAT-EVM counts	Probability of not detecting tampering of any EVM, in the cumulative random cross checks of VVPAT-EVM counts, till that point	Probability of not detecting tampering of any EVM, in the cumulative random cross checks of VVPAT-EVM counts, till that point, % age
68	65	136	10	126	0.926470588	0.017540983	1.75%
69	66	135	10	125	0.925925926	0.016241651	1.62%
70	67	134	10	124	0.925373134	0.015029587	1.50%
71	68	133	10	123	0.92481203	0.013899543	1.39%
72	69	132	10	122	0.924242424	0.012846548	1.28%
73	70	131	10	121	0.923664122	0.011865895	1.19%
74	71	130	10	120	0.923076923	0.010953134	1.10%
75	72	129	10	119	0.92248062	0.010104054	1.01%
76	73	128	10	118	0.921875	0.009314675	0.93%
77	74	127	10	117	0.921259843	0.008581236	0.86%
78	75	126	10	116	0.920634921	0.007900185	0.79%
79	76	125	10	115	0.92	0.00726817	0.73%
80	77	124	10	114	0.919354839	0.006682028	0.67%
81	78	123	10	113	0.918699187	0.006138773	0.61%
82	79	122	10	112	0.918032787	0.005635595	0.56%
83	80	121	10	111	0.917355372	0.005169843	0.52%
84	81	120	10	110	0.916666667	0.004739023	0.47%
85	82	119	10	109	0.915966387	0.004340786	0.43%
86	83	118	10	108	0.915254237	0.003972923	0.40%
87	84	117	10	107	0.914529915	0.003633357	0.36%
88	85	116	10	106	0.913793103	0.003320136	0.33%
89	86	115	10	105	0.913043478	0.003031429	0.30%
90	87	114	10	104	0.912280702	0.002765514	0.28%
91	88	113	10	103	0.911504425	0.002520778	0.25%
92	89	112	10	102	0.910714286	0.002295709	0.23%
93	90	111	10	101	0.90990991	0.002088888	0.21%
94	91	110	10	100	0.909090909	0.001898989	0.19%
95	92	109	10	99	0.908256881	0.00172477	0.17%
96	93	108	10	98	0.907407407	0.001565069	0.16%
97	94	107	10	97	0.906542056	0.001418801	0.14%
98	95	106	10	96	0.905660377	0.001284952	0.13%
99	96	105	10	95	0.904761905	0.001162575	0.12%
100	97	104	10	94	0.903846154	0.001050789	0.11%
101	98	103	10	93	0.902912621	0.000948771	0.09%
102							
103	Percent of Booths that will need to be cross checked to detect any tampering of EVMs with 99.9% Probability = (A101/C2) =						49.00%