



Poker Cards Analysis – December 2025

The Directors

Entain Plc

This is to confirm that iTech Labs has examined the game logs for Poker games for the period **December 01, 2025, to December 31, 2025**, as recorded by the respective game servers and analyzed the Poker cards for statistical randomness. The results of the analysis are given below.

For details on the gaming sites serviced by the Entain Plc game servers and used in this audit refer to the [List](#).

1. Poker hand types statistics

These calculations were done for Royal Flush, Straight Flush, Four of a Kind, Full House, Flush, Straight, 3 of a Kind, 2 pairs, 1 Pair, High Card.

The Poker hand types analysis involved creating subsets of data and conducting Chi-square tests on each subset.

The null hypothesis for the chi-square test is that the observed frequencies of each type of hand matches the theoretical values for a deck that has been shuffled using a perfect random number generator. The p-values observed in these multiple tests are expected to follow a uniform distribution for the range 0.0 to 1.0.

The analysis performs a KS Test (Kolmogorov-Smirnov test) for uniform distribution on the observed p-values, and the combined p-value result of this test is taken as the final result of the Poker hand types statistics tests.

1.1 Poker hand types statistics for 52 cards deck:

Test No.	DOF	ChiSqr	P-Value
1	9	13.13	0.15660
2	9	12.28	0.19808
3	9	11.62	0.23560
4	9	5.25	0.81189
5	9	10.59	0.30455
6	9	8.53	0.48145
7	9	6.36	0.70375
8	9	12.19	0.20267
9	9	11.46	0.24580
10	9	8.07	0.52715
11	9	11.04	0.27282
12	9	7.23	0.61284

Test No.	DOF	ChiSqr	P-Value
13	9	4.77	0.85383
14	9	3.76	0.92645
15	9	7.40	0.59530
16	9	3.18	0.95651
17	9	7.47	0.58790
18	9	9.33	0.40765
19	9	23.73	0.00475
20	9	12.60	0.18149
21	9	4.44	0.87993
22	9	6.81	0.65676
23	9	3.46	0.94343
24	9	12.92	0.16636
25	9	5.26	0.81105
26	9	3.13	0.95901
27	9	5.98	0.74152
28	9	7.52	0.58294
29	9	11.95	0.21606
30	9	16.11	0.06461
31	9	4.53	0.87297
32	9	18.51	0.02966
33	9	17.44	0.04224
34	9	11.58	0.23808
35	9	6.05	0.73498
36	9	6.59	0.67999
37	9	10.73	0.29441
38	9	10.22	0.33270
39	9	12.28	0.19818
40	9	3.53	0.93950
41	9	11.03	0.27336
42	9	5.63	0.77614
43	9	6.04	0.73604

Test No.	DOF	ChiSqr	P-Value
44	9	8.53	0.48140
45	9	5.40	0.79805
46	9	3.80	0.92410
47	9	4.17	0.90004
48	9	5.84	0.75535
49	9	7.44	0.59154
50	9	10.47	0.31399
51	9	6.63	0.67528
52	9	10.34	0.32341
53	9	11.32	0.25447
54	9	9.19	0.42008
55	9	7.17	0.61960
56	9	7.38	0.59779
57	9	3.29	0.95176
58	9	9.16	0.42291
59	9	5.18	0.81851
60	9	6.33	0.70692
61	9	6.70	0.66805
62	9	9.64	0.38062
63	9	6.31	0.70898
64	9	8.64	0.47121
65	9	8.18	0.51586
66	9	12.26	0.19916
67	9	4.03	0.90972
68	9	5.79	0.76110
69	9	7.60	0.57497
70	9	10.26	0.32984
71	9	3.52	0.94009
72	9	3.89	0.91876
73	9	5.11	0.82434
74	9	11.67	0.23271

Test No.	DOF	ChiSqr	P-Value
75	9	7.42	0.59317
76	9	5.03	0.83133
77	9	6.17	0.72324
78	9	16.67	0.05423
79	9	2.64	0.97694
80	9	15.60	0.07572
81	9	10.78	0.29123
82	9	4.25	0.89393
83	9	9.39	0.40192
84	9	15.46	0.07914
85	9	3.07	0.96165
86	9	12.59	0.18219
87	9	3.16	0.95776
88	9	8.64	0.47132
89	9	14.66	0.10071
90	9	11.46	0.24527
91	9	23.44	0.00527
92	9	4.20	0.89744
93	9	10.48	0.31304
94	9	5.80	0.75941
95	9	17.52	0.04116
96	9	15.34	0.08194
97	9	6.70	0.66784
98	9	15.37	0.08121
99	9	7.07	0.62936
100	9	7.31	0.60509
Combined P-value for all tests (Using KS method)			0.31279

Notes:

- 1) The P-values are observed probabilities from the Chi-Square tests. The last row shows the result of the KS Test performed on the p-values for all Chi-Square tests, where there are sufficient data.

2. Poker rank statistics

The Poker rank analysis aims to establish that the rank of the cards in each position was equally distributed in one of the 13 possible ranks (2, 3, 4, 5, 6, 7, 8, 9, 10, J, Q, K, A) for a 52 card deck.

The Poker rank analysis involved creating subsets of data and conducting Chi-square tests on each subset. The analysis performs a KS Test (Kolmogorov-Smirnov test) for uniform distribution on the observed p-values, and the combined p-value result of this test is taken as the final result of the Ranks statistics tests.

2.1 Poker rank statistics for 52 cards deck:

Test No.	DOF	ChiSqr	P-Value
1	84	70.91	0.84500
2	84	71.42	0.83433
3	84	82.61	0.52236
4	84	81.74	0.54944
5	84	70.61	0.85111
6	84	72.12	0.81895
7	84	83.23	0.50327
8	84	82.86	0.51480
9	84	98.73	0.12997
10	84	87.43	0.37744
11	84	88.51	0.34702
12	84	102.28	0.08532
13	84	84.30	0.47032
14	84	88.09	0.35880
15	84	88.03	0.36038
16	84	77.32	0.68355
17	84	86.54	0.40306
18	84	114.72	0.01460
19	84	101.16	0.09789
20	84	91.86	0.26120
21	84	71.79	0.82626
22	84	74.78	0.75407
23	84	81.73	0.54994
24	84	80.46	0.58921

Test No.	DOF	ChiSqr	P-Value
25	84	100.65	0.10405
26	84	81.75	0.54903
27	84	87.71	0.36928
28	84	77.60	0.67560
29	84	71.92	0.82352
30	84	103.29	0.07521
31	84	104.97	0.06052
32	84	87.71	0.36953
33	84	88.02	0.36064
34	84	76.19	0.71576
35	84	81.24	0.56511
36	84	81.09	0.56975
37	84	78.98	0.63443
38	84	106.78	0.04740
39	84	79.29	0.62494
40	84	84.19	0.47369
41	84	81.31	0.56294
42	84	65.22	0.93591
43	84	86.26	0.41140
44	84	80.61	0.58448
45	84	103.38	0.07435
46	84	75.66	0.73047
47	84	77.92	0.66621
48	84	103.04	0.07767
49	84	87.46	0.37639
50	84	71.26	0.83778
51	84	108.84	0.03553
52	84	108.37	0.03801
53	84	86.65	0.39981
54	84	80.31	0.59385
55	84	85.67	0.42893

Test No.	DOF	ChiSqr	P-Value
56	84	77.80	0.66956
57	84	106.43	0.04976
58	84	86.05	0.41765
59	84	93.83	0.21730
60	84	79.19	0.62810
61	84	94.97	0.19400
62	84	89.35	0.32431
63	84	89.32	0.32528
64	84	87.29	0.38127
65	84	104.82	0.06169
66	84	91.74	0.26408
67	84	91.43	0.27155
68	84	96.16	0.17171
69	84	88.32	0.35227
70	84	68.60	0.88821
71	84	111.90	0.02263
72	84	84.17	0.47437
73	84	74.31	0.76622
74	84	92.50	0.24646
75	84	61.26	0.97070
76	84	78.12	0.66007
77	84	74.97	0.74905
78	84	94.44	0.20468
79	84	101.86	0.08985
80	84	92.99	0.23540
81	84	59.22	0.98158
82	84	58.36	0.98510
83	84	84.53	0.46323
84	84	87.16	0.38519
85	84	75.66	0.73045
86	84	76.72	0.70094

Test No.	DOF	ChiSqr	P-Value
87	84	84.12	0.47574
88	84	92.48	0.24692
89	84	91.26	0.27552
90	84	93.57	0.22273
91	84	89.64	0.31670
92	84	94.33	0.20690
93	84	98.99	0.12617
94	84	66.73	0.91681
95	84	84.86	0.45334
96	84	76.91	0.69549
97	84	98.44	0.13417
98	84	95.72	0.17972
99	84	82.77	0.51741
100	84	85.90	0.42195
Combined P-value for all tests (Using KS method)			0.19774

Notes:

- 1) The P-values are observed probabilities from the Chi-Square tests. The last row shows the result of the KS Test performed on the p-values for all Chi-Square tests, where there are sufficient data.

3. Poker suits statistics

The Poker suits analysis aims to verify that the cards dealt exhibit an equal probability of all 4 suits (Clubs, Diamonds, Hearts and Spades) in all positions.

The Poker suits analysis involved creating subsets of data and conducting Chi-square tests on each subset. The analysis performs a KS Test (Kolmogorov-Smirnov test) for uniform distribution on the observed p-values, and the combined p-value result of this test is taken as the final result of the Suits statistics tests.

3.1 Poker suits statistics for 52 cards deck:

Test No.	Positions	DOF	ChiSqr	P-Value
1	7	21	24.33	0.27724
2	7	21	15.04	0.82107
3	7	21	13.76	0.87983

Test No.	Positions	DOF	ChiSqr	P-Value
4	7	21	23.19	0.33371
5	7	21	16.43	0.74500
6	7	21	36.81	0.01768
7	7	21	15.11	0.81730
8	7	21	24.17	0.28510
9	7	21	11.96	0.94080
10	7	21	27.33	0.16035
11	7	21	24.13	0.28679
12	7	21	11.87	0.94296
13	7	21	14.86	0.82990
14	7	21	41.58	0.00475
15	7	21	31.08	0.07232
16	7	21	37.28	0.01561
17	7	21	22.35	0.37952
18	7	21	12.89	0.91234
19	7	21	16.05	0.76695
20	7	21	28.37	0.13000
21	7	21	10.57	0.97049
22	7	21	19.61	0.54579
23	7	21	17.90	0.65550
24	7	21	17.78	0.66285
25	7	21	17.29	0.69309
26	7	21	14.29	0.85699
27	7	21	32.83	0.04816
28	7	21	21.55	0.42591
29	7	21	10.94	0.96395
30	7	21	23.17	0.33499
31	7	21	17.12	0.70364
32	7	21	20.96	0.46129
33	7	21	34.70	0.03041
34	7	21	16.56	0.73750

Test No.	Positions	DOF	ChiSqr	P-Value
35	7	21	24.58	0.26592
36	7	21	13.11	0.90460
37	7	21	29.25	0.10803
38	7	21	17.48	0.68159
39	7	21	14.21	0.86022
40	7	21	22.69	0.36050
41	7	21	40.65	0.00619
42	7	21	11.57	0.95050
43	7	21	26.39	0.19193
44	7	21	17.59	0.67475
45	7	21	24.22	0.28259
46	7	21	21.62	0.42144
47	7	21	7.83	0.99581
48	7	21	15.20	0.81298
49	7	21	14.56	0.84453
50	7	21	21.03	0.45737
51	7	21	18.26	0.63233
52	7	21	15.00	0.82305
53	7	21	32.04	0.05806
54	7	21	20.48	0.49111
55	7	21	11.43	0.95380
56	7	21	30.03	0.09138
57	7	21	19.04	0.58263
58	7	21	14.39	0.85226
59	7	21	27.47	0.15597
60	7	21	29.39	0.10497
61	7	21	20.74	0.47479
62	7	21	33.03	0.04593
63	7	21	22.19	0.38873
64	7	21	16.60	0.73530
65	7	21	15.44	0.80010

Test No.	Positions	DOF	ChiSqr	P-Value
66	7	21	30.67	0.07929
67	7	21	24.51	0.26889
68	7	21	25.50	0.22618
69	7	21	27.39	0.15816
70	7	21	13.15	0.90329
71	7	21	29.95	0.09310
72	7	21	17.15	0.70199
73	7	21	39.30	0.00903
74	7	21	24.21	0.28298
75	7	21	32.13	0.05677
76	7	21	32.83	0.04814
77	7	21	23.53	0.31646
78	7	21	27.73	0.14787
79	7	21	23.77	0.30431
80	7	21	13.85	0.87607
81	7	21	41.39	0.00501
82	7	21	14.92	0.82709
83	7	21	24.02	0.29202
84	7	21	19.17	0.57395
85	7	21	16.00	0.76952
86	7	21	24.10	0.28820
87	7	21	13.11	0.90479
88	7	21	39.09	0.00959
89	7	21	27.42	0.15724
90	7	21	33.97	0.03650
91	7	21	17.99	0.64983
92	7	21	18.22	0.63525
93	7	21	13.73	0.88107
94	7	21	16.13	0.76230
95	7	21	26.93	0.17310
96	7	21	21.19	0.44713

Test No.	Positions	DOF	ChiSqr	P-Value
97	7	21	14.35	0.85407
98	7	21	35.37	0.02567
99	7	21	34.61	0.03118
100	7	21	25.31	0.23380
Combined P-value for all tests (Using KS method)				0.16939

Notes:

- 1) The P-values are observed probabilities from the Chi-Square tests. The last row shows the result of the KS Test performed on the p-values for all Chi-Square tests, where there are sufficient data.

4. Summary of the analysis

4.1 Summary of the analysis of 52 cards deck:

The analysis of 52 cards completes by combining the result of the KS Test performed in the 3 types of analysis (Hand Types, Ranks and Suits) for 52 card decks using the Holm's method and producing a single Combined P -value.

The combined p-value produced using the Holm's method is used as indication for statistical randomness.

Combination of p-values using Holm's Method		
Test	P-Value	P-Adjusted
Ranks Test	0.19774	0.50817
Suits Test	0.16939	0.50817
Hand Types Test	0.31279	0.50817
Combined P-Value using Holm's Method		0.50817

Notes:

- 1) The combined p-value of all statistical tests using Holm's Method conducted for 52 card decks is greater than the minimum value of 0.05 which indicates that the randomness of the observed data falls within 95% confidence limits. The final outcome of the analysis of 52 cards deck indicates that the RNG is working correctly.

5. Conclusion

Analysis of actual data from game logs for 'Hand Types', 'Ranks' and 'Suits' for **52-card decks** indicated statistical randomness. Since there is no data in the case of 36 card deck, this report does not contain the details of 36 card deck.

iTech Labs has done limited sanity checks to verify the integrity of the game logs. iTech Labs also maintains a copy of the game logs for verification purposes. There were a large enough number of game records to give the calculations sufficient statistical power.

We conclude that the Random Number Generator (RNG) is working correctly.

Signed:



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