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**A CHARACTER-MAPPING TECHNIQUE BASED ON LETTER
FREQUENCY FOR ENHANCING FEATURE-BASED TEXT
STEGANOGRAPHY**



**DOCTOR OF PHILOSOPHY
UNIVERSITI UTARA MALAYSIA
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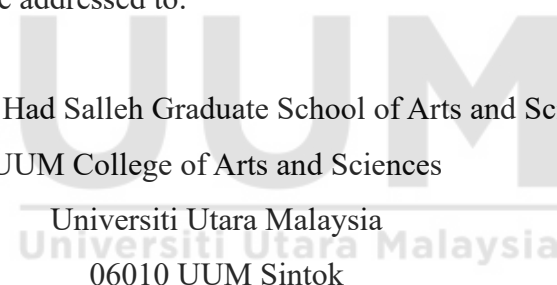
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Abstrak

Dalam steganografi berasaskan teks, para penyelidik memperkenalkan pelbagai teknik untuk memastikan maklumat tersembunyi tidak dapat dikesan secara berterusan. Salah satunya, ialah teknik yang dipanggil steganografi berasaskan teks yang berpandukan ciri di mana teknik ini digunakan secara meluas dengan melibatkan pengubahsuaian ciri-ciri berasaskan aksara dalam teks. Walau bagaimanapun, teknik berasaskan ciri ini menghadapi cabaran untuk menyampaikan dan menjamin keselamatan maklumat walaupun terdapat perubahan terhadap aksara dalam mesej muka depan. Kebergantungan terhadap aksara mengehadkan penggunaan mesej muka depan disebabkan pembenaman mesej tersembunyi bergantung kepada aksara yang tersedia. Penyelidikan ini bertujuan menangani isu kebergantungan terhadap aksara dalam steganografi berasaskan teks yang berpandukan ciri dengan mencadangkan teknik *Character-Mapping*. Objektif penyelidikan termasuklah mereka bentuk, membangunkan, dan menilai teknik *Character-Mapping* dalam sistem steganografi berasaskan teks yang dilaksanakan melalui prototaip bersandarkan platform Java. Cadangan teknik *Character-Mapping* ini menggunakan kekerapan huruf yang digunakan dalam teks Bahasa Inggeris untuk menyembunyikan mesej tersembunyi berdasarkan jadual pemetaan aksara. Sebagai tambahan, penyelidikan ini menjalankan perbandingan di antara teknik yang dicadangkan dan dua teknik sedia ada, iaitu teknik *Bit-One-Count* dan *Extended-1* dari sudut kapasiti, ketidakjelasan, dan keteguhan yang dikategorikan sebagai tiga aspek penilaian bagi menilai kekuatan prestasi mereka. Hasil eksperimen menyerlahkan bahawa teknik *Character-Mapping* mencapai nisbah kapasiti 0.024, dengan nisbah ketidakjelasan 0.904, dan tahap keteguhan 99.98%. Analisis prestasi menunjukkan bahawa teknik *Character-Mapping* yang dicadangkan memberikan kapasiti, ketidakjelasan, dan keteguhan yang baik. Cadangan teknik *Character-Mapping* ini mempertingkatkan steganografi berasaskan teks yang berpandukan ciri bagi mengatasi penghadan ke atas kebergantungan aksara. Ia memelihara keaslian mesej muka depan dan mengekalkan rintangan terhadap pengubahsuaian. Hasil penyelidikan ini menyumbang ke arah penambahbaikan kebolehgunaan teknik berasaskan ciri dalam melindungi penyembunyian teks.

Kata Kunci: Steganografi, Teks, Berasaskan ciri, Kebergantungan aksara dan berasaskan pemetaan.

Abstract

In the field of text steganography, researchers introduce diverse techniques to ensure that the hidden information remains undetectable. One widely used technique is feature-based text steganography, which involves modifying the features of characters in the text. However, this technique faces challenges of delivering and preserving the security of information while altering the characters in the cover text. The character dependency limits the utilization of cover text, as the concealment of the hidden text depends on the availability of provided characters. This study aims to overcome character dependency issue in the feature-based text steganography by proposing the Character-Mapping technique. The objectives include designing, developing, and evaluating the Character-Mapping technique within a text steganography system implemented based on a Java platform prototype. The proposed Character-Mapping technique utilizes the frequency of letters in English text to conceal the hidden text, according to the established character-mapping table. In addition, the study conducts a comparison between the proposed technique and the two existing techniques, Bit-One-Count and Extended-1 using capacity, imperceptibility, and robustness as the three evaluation aspects to assess their performance. Experimental results imply that the Character-Mapping technique attains a capacity ratio of 0.024, an imperceptibility ratio of 0.904, and a robustness level of 99.98%. The performance analysis demonstrates that the proposed Character-Mapping technique provides a good capacity, imperceptibility, and robustness. The proposed Character-Mapping technique enhances feature-based text steganography in overcoming the character dependency limitation. It preserves the naturalness of the cover text while maintaining resistance against modification. The findings contribute to improving the applicability of the feature-based technique in safeguarding text concealment.

Keywords: Steganography, Text, Feature-based, Character dependency and mapping-based.

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List of Abbreviations

AVI	Audio Video Interleave
CALP	Changing in Alphabet Letter Patterns
CASE	Capital Alphabet Shape Encoding
CT	Cover Text
CURVE	Curve Character Subheading
DGAs	Domain Generation Algorithms
DR	Distortion Robustness
FN	False Negative
FP	False Positive
HT	Hidden Text
ICMP	Internet Control Message Protocol
IP	Internet Protocol
LP	Losing Probability
MP3	MPEG-1 Audio Layer 3
MP4	MPEG-4 Part 14
MPEG	Moving Picture Experts Group
PCFG	Probabilistic context-free grammar
SHFL	Set of High Frequency Letter
SSCE	Secret Steganography Code for Embedding
ST	Stego Text
TCU	Telecommunication Control Unit
TN	True Negative
TP	True Positive
WAV	Waveform Audio File Format
VERT	Vertical Straight Line
ZWC	Zero Width Character
ZWJ	Zero Width Joiner
ZWNJ	Zero Width Non-Joiner

CHAPTER ONE

INTRODUCTION

1.1 Overview

This chapter provides an overview of this research, beginning with a background study and highlighting steganography as the focus area, and then expands to text steganography as the major domain within the steganography system. The next section of this chapter provides the problem statement, which elaborates on the details of the issues and problems raised in this study. After that, the section in this chapter moves forward to clarify the research questions, research aims and objectives, research scope, and research significance that are associated with the field of study. In the end, this chapter concludes with the organization of the thesis to indicate the whole chapter of this study and the connection between them.

1.2 Background of Study

With the advancement of today's communication systems, the requirement for data security is considered as an important factor to be fulfilled when delivering or transferring information. The essence of data security becomes one of the most crucial issues in digital communication. Therefore, steganography is identified as one of the schemes used to provide the security of data. Steganography is a mechanism used to conceal information without others knowing the existence of the message. Steganography is very useful in hiding and transferring the hidden message from the source to destination. Thus, steganography can be applied for various purposes in scientific, social, and government applications, such as for military, private banking and online voting (Al.Azzam & Algamdi, 2023; Ansari et al., 2019; Michaylov &

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Appendix A

Experimental Result of First Technique; Bit-One-Count

1. Bit-One-Count cover text 1

	Length of Cover Text (Characters)	Size of Cover Text (Bytes)	Length of Hidden Text (Characters)	Size of Hidden Text (Bytes)	Length of Stego Text (Characters)	Size of Stego Text (Bytes)	Used Characters	Unused Characters	Embedding Time (ms)	Extracting Time (ms)
1	1254442	2508888	29	60	1254442	2508888	116	1254326	488	666
2	1254442	2508888	59	120	1254442	2508888	236	1254206	991	664
3	1254442	2508888	88	178	1254442	2508888	352	1254090	1088	797
4	1254442	2508888	118	238	1254442	2508888	472	1253970	1187	776
5	1254442	2508888	146	294	1254442	2508888	584	1253858	1485	867
6	1254442	2508888	175	352	1254442	2508888	700	1253742	1781	1616
7	1254442	2508888	202	406	1254442	2508888	808	1253634	1870	1147
8	1254442	2508888	230	462	1254442	2508888	920	1253522	2274	1382
9	1254442	2508888	260	522	1254442	2508888	1040	1253402	2710	1574
10	1254442	2508888	291	584	1254442	2508888	1164	1253278	2522	1637
11	1254442	2508888	321	644	1254442	2508888	1284	1253158	3164	1633
12	1254442	2508888	352	706	1254442	2508888	1408	1253034	3130	1722
13	1254442	2508888	381	764	1254442	2508888	1524	1252918	3613	1766
14	1254442	2508888	411	824	1254442	2508888	1644	1252798	3879	1885
15	1254442	2508888	439	880	1254442	2508888	1756	1252686	4114	1775
16	1254442	2508888	468	938	1254442	2508888	1872	1252570	4354	2170
17	1254442	2508888	496	994	1254442	2508888	1984	1252458	4562	2291
18	1254442	2508888	525	1052	1254442	2508888	2100	1252342	4992	2139
19	1254442	2508888	552	1106	1254442	2508888	2208	1252234	5138	2540
20	1254442	2508888	580	1162	1254442	2508888	2320	1252122	5711	2384

2. Bit-One-Count cover text 2

	Length of Cover Text (Characters)	Size of Cover Text (Bytes)	Length of Hidden Text (Characters)	Size of Hidden Text (Bytes)	Length of Stego Text (Characters)	Size of Stego Text (Bytes)	Used Characters	Unused Characters	Embedding Time (ms)	Extracting Time (ms)
1	1217494	2434992	29	60	1217494	2434992	116	1217378	443	744
2	1217494	2434992	59	120	1217494	2434992	236	1217258	809	800
3	1217494	2434992	88	178	1217494	2434992	352	1217142	1104	798
4	1217494	2434992	118	238	1217494	2434992	472	1217022	1186	873
5	1217494	2434992	146	294	1217494	2434992	584	1216910	1333	889
6	1217494	2434992	175	352	1217494	2434992	700	1216794	1734	968
7	1217494	2434992	202	406	1217494	2434992	808	1216686	2044	1381
8	1217494	2434992	230	462	1217494	2434992	920	1216574	2446	1296
9	1217494	2434992	260	522	1217494	2434992	1040	1216454	2714	1454
10	1217494	2434992	291	584	1217494	2434992	1164	1216330	2778	1582
11	1217494	2434992	321	644	1217494	2434992	1284	1216210	3046	1631
12	1217494	2434992	352	706	1217494	2434992	1408	1216086	3094	1746
13	1217494	2434992	381	764	1217494	2434992	1524	1215970	3250	2008
14	1217494	2434992	411	824	1217494	2434992	1644	1215850	3390	1957
15	1217494	2434992	439	880	1217494	2434992	1756	1215738	3671	1794
16	1217494	2434992	468	938	1217494	2434992	1872	1215622	4000	2132
17	1217494	2434992	496	994	1217494	2434992	1984	1215510	4453	2158
18	1217494	2434992	525	1052	1217494	2434992	2100	1215394	4656	2324
19	1217494	2434992	552	1106	1217494	2434992	2208	1215286	4484	2258
20	1217494	2434992	580	1162	1217494	2434992	2320	1215174	4906	2629

3. Bit-One-Count cover text 3

	Length of Cover Text (Characters)	Size of Cover Text (Bytes)	Length of Hidden Text (Characters)	Size of Hidden Text (Bytes)	Length of Stego Text (Characters)	Size of Stego Text (Bytes)	Used Characters	Unused Characters	Embedding Time (ms)	Extracting Time (ms)
1	1298720	2597444	29	60	1298720	2597444	116	1298604	421	787
2	1298720	2597444	59	120	1298720	2597444	236	1298484	859	709
3	1298720	2597444	88	178	1298720	2597444	352	1298368	891	818

4	1298720	2597444	118	238	1298720	2597444	472	1298248	1141	926
5	1298720	2597444	146	294	1298720	2597444	584	1298136	1360	1400
6	1298720	2597444	175	352	1298720	2597444	700	1298020	1610	1270
7	1298720	2597444	202	406	1298720	2597444	808	1297912	1891	1394
8	1298720	2597444	230	462	1298720	2597444	920	1297800	2296	1444
9	1298720	2597444	260	522	1298720	2597444	1040	1297680	2359	1413
10	1298720	2597444	291	584	1298720	2597444	1164	1297556	2671	1585
11	1298720	2597444	321	644	1298720	2597444	1284	1297436	2812	1684
12	1298720	2597444	352	706	1298720	2597444	1408	1297312	3250	1768
13	1298720	2597444	381	764	1298720	2597444	1524	1297196	3391	1845
14	1298720	2597444	411	824	1298720	2597444	1644	1297076	3609	2013
15	1298720	2597444	439	880	1298720	2597444	1756	1296964	4187	1999
16	1298720	2597444	468	938	1298720	2597444	1872	1296848	4046	2137
17	1298720	2597444	496	994	1298720	2597444	1984	1296736	4453	2536
18	1298720	2597444	525	1052	1298720	2597444	2100	1296620	4688	2316
19	1298720	2597444	552	1106	1298720	2597444	2208	1296512	4953	2692
20	1298720	2597444	580	1162	1298720	2597444	2320	1296400	5166	2443

4. Bit-One-Count cover text 4

	Length of Cover Text (Characters)	Size of Cover Text (Bytes)	Length of Hidden Text (Characters)	Size of Hidden Text (Bytes)	Length of Stego Text (Characters)	Size of Stego Text (Bytes)	Used Characters	Unused Characters	Embedding Time (ms)	Extracting Time (ms)
1	1321622	2643248	29	60	1321622	2643248	116	1321506	359	771
2	1321622	2643248	59	120	1321622	2643248	236	1321386	735	725
3	1321622	2643248	88	178	1321622	2643248	352	1321270	859	776
4	1321622	2643248	118	238	1321622	2643248	472	1321150	1125	917
5	1321622	2643248	146	294	1321622	2643248	584	1321038	1422	978
6	1321622	2643248	175	352	1321622	2643248	700	1320922	1656	1300
7	1321622	2643248	202	406	1321622	2643248	808	1320814	1953	1382
8	1321622	2643248	230	462	1321622	2643248	920	1320702	2110	1607
9	1321622	2643248	260	522	1321622	2643248	1040	1320582	2235	1868
10	1321622	2643248	291	584	1321622	2643248	1164	1320458	2750	1884
11	1321622	2643248	321	644	1321622	2643248	1284	1320338	2906	1991
12	1321622	2643248	352	706	1321622	2643248	1408	1320214	3578	1994
13	1321622	2643248	381	764	1321622	2643248	1524	1320098	3921	2209
14	1321622	2643248	411	824	1321622	2643248	1644	1319978	3640	2745
15	1321622	2643248	439	880	1321622	2643248	1756	1319866	3937	2415
16	1321622	2643248	468	938	1321622	2643248	1872	1319750	4062	2278
17	1321622	2643248	496	994	1321622	2643248	1984	1319638	4499	2605
18	1321622	2643248	525	1052	1321622	2643248	2100	1319522	4672	2587
19	1321622	2643248	552	1106	1321622	2643248	2208	1319414	5015	3019
20	1321622	2643248	580	1162	1321622	2643248	2320	1319302	5203	3171

5. Bit-One-Count cover text 5

	Length of Cover Text (Characters)	Size of Cover Text (Bytes)	Length of Hidden Text (Characters)	Size of Hidden Text (Bytes)	Length of Stego Text (Characters)	Size of Stego Text (Bytes)	Used Characters	Unused Characters	Embedding Time (ms)	Extracting Time (ms)
1	1388643	2777290	29	60	1388643	2777290	116	1388527	437	1314
2	1388643	2777290	59	120	1388643	2777290	236	1388407	968	1286
3	1388643	2777290	88	178	1388643	2777290	352	1388291	1344	1386
4	1388643	2777290	118	238	1388643	2777290	472	1388171	1187	1397
5	1388643	2777290	146	294	1388643	2777290	584	1388059	1500	1300
6	1388643	2777290	175	352	1388643	2777290	700	1387943	1750	1550
7	1388643	2777290	202	406	1388643	2777290	808	1387835	1969	2342
8	1388643	2777290	230	462	1388643	2777290	920	1387723	2281	2097
9	1388643	2777290	260	522	1388643	2777290	1040	1387603	2437	2289
10	1388643	2777290	291	584	1388643	2777290	1164	1387479	2578	2303
11	1388643	2777290	321	644	1388643	2777290	1284	1387359	3015	2630
12	1388643	2777290	352	706	1388643	2777290	1408	1387235	3093	2606
13	1388643	2777290	381	764	1388643	2777290	1524	1387119	3610	2708
14	1388643	2777290	411	824	1388643	2777290	1644	1386999	3749	3001
15	1388643	2777290	439	880	1388643	2777290	1756	1386887	4281	2886
16	1388643	2777290	468	938	1388643	2777290	1872	1386771	4594	3268
17	1388643	2777290	496	994	1388643	2777290	1984	1386659	4625	3473
18	1388643	2777290	525	1052	1388643	2777290	2100	1386543	5109	3449
19	1388643	2777290	552	1106	1388643	2777290	2208	1386435	5312	3392
20	1388643	2777290	580	1162	1388643	2777290	2320	1386323	5609	3647

6. Bit-One-Count cover text 6

	Length of Cover Text (Characters)	Size of Cover Text (Bytes)	Length of Hidden Text (Characters)	Size of Hidden Text (Bytes)	Length of Stego Text (Characters)	Size of Stego Text (Bytes)	Used Characters	Unused Characters	Embedding Time (ms)	Extracting Time (ms)
1	1254764	2509532	29	60	1254764	2509532	116	1254648	344	1085
2	1254764	2509532	59	120	1254764	2509532	236	1254528	672	1429
3	1254764	2509532	88	178	1254764	2509532	352	1254412	953	1154
4	1254764	2509532	118	238	1254764	2509532	472	1254292	969	1321
5	1254764	2509532	146	294	1254764	2509532	584	1254180	1157	1390
6	1254764	2509532	175	352	1254764	2509532	700	1254064	1593	1551
7	1254764	2509532	202	406	1254764	2509532	808	1253956	1750	1650
8	1254764	2509532	230	462	1254764	2509532	920	1253844	2125	2560
9	1254764	2509532	260	522	1254764	2509532	1040	1253724	2219	2172
10	1254764	2509532	291	584	1254764	2509532	1164	1253600	2562	2462
11	1254764	2509532	321	644	1254764	2509532	1284	1253480	2547	2412
12	1254764	2509532	352	706	1254764	2509532	1408	1253356	4328	2467
13	1254764	2509532	381	764	1254764	2509532	1524	1253240	3125	2590
14	1254764	2509532	411	824	1254764	2509532	1644	1253120	3562	2651
15	1254764	2509532	439	880	1254764	2509532	1756	1253008	3531	2765
16	1254764	2509532	468	938	1254764	2509532	1872	1252892	3968	2904
17	1254764	2509532	496	994	1254764	2509532	1984	1252780	4374	3139
18	1254764	2509532	525	1052	1254764	2509532	2100	1252664	4406	3179
19	1254764	2509532	552	1106	1254764	2509532	2208	1252556	4734	3425
20	1254764	2509532	580	1162	1254764	2509532	2320	1252444	4984	3370

7. Bit-One-Count cover text 7

	Length of Cover Text (Characters)	Size of Cover Text (Bytes)	Length of Hidden Text (Characters)	Size of Hidden Text (Bytes)	Length of Stego Text (Characters)	Size of Stego Text (Bytes)	Used Characters	Unused Characters	Embedding Time (ms)	Extracting Time (ms)
1	1256771	2513546	29	60	1256771	2513546	116	1256655	437	1439
2	1256771	2513546	59	120	1256771	2513546	236	1256535	672	1483
3	1256771	2513546	88	178	1256771	2513546	352	1256419	937	1327
4	1256771	2513546	118	238	1256771	2513546	472	1256299	1047	1308
5	1256771	2513546	146	294	1256771	2513546	584	1256187	1256	1973
6	1256771	2513546	175	352	1256771	2513546	700	1256071	1640	1663
7	1256771	2513546	202	406	1256771	2513546	808	1255963	1844	1830
8	1256771	2513546	230	462	1256771	2513546	920	1255851	2000	1994
9	1256771	2513546	260	522	1256771	2513546	1040	1255731	2234	2404
10	1256771	2513546	291	584	1256771	2513546	1164	1255607	2968	2324
11	1256771	2513546	321	644	1256771	2513546	1284	1255487	2702	2404
12	1256771	2513546	352	706	1256771	2513546	1408	1255363	3047	2495
13	1256771	2513546	381	764	1256771	2513546	1524	1255247	3860	2797
14	1256771	2513546	411	824	1256771	2513546	1644	1255127	3422	2722
15	1256771	2513546	439	880	1256771	2513546	1756	1255015	3546	2844
16	1256771	2513546	468	938	1256771	2513546	1872	1254899	4109	3041
17	1256771	2513546	496	994	1256771	2513546	1984	1254787	4062	3200
18	1256771	2513546	525	1052	1256771	2513546	2100	1254671	4406	3220
19	1256771	2513546	552	1106	1256771	2513546	2208	1254563	4484	3514
20	1256771	2513546	580	1162	1256771	2513546	2320	1254451	4906	3461

8. Bit-One-Count cover text 8

	Length of Cover Text (Characters)	Size of Cover Text (Bytes)	Length of Hidden Text (Characters)	Size of Hidden Text (Bytes)	Length of Stego Text (Characters)	Size of Stego Text (Bytes)	Used Characters	Unused Characters	Embedding Time (ms)	Extracting Time (ms)
1	1410116	2820236	29	60	1410116	2820236	116	1410000	500	1346
2	1410116	2820236	59	120	1410116	2820236	236	1409880	736	1464
3	1410116	2820236	88	178	1410116	2820236	352	1409764	1062	1511
4	1410116	2820236	118	238	1410116	2820236	472	1409644	1265	1365
5	1410116	2820236	146	294	1410116	2820236	584	1409532	1359	2080
6	1410116	2820236	175	352	1410116	2820236	700	1409416	1703	1851
7	1410116	2820236	202	406	1410116	2820236	808	1409308	2062	2081
8	1410116	2820236	230	462	1410116	2820236	920	1409196	2188	2112
9	1410116	2820236	260	522	1410116	2820236	1040	1409076	2359	2448

10	1410116	2820236	291	584	1410116	2820236	1164	1408952	2593	2470
11	1410116	2820236	321	644	1410116	2820236	1284	1408832	3203	2577
12	1410116	2820236	352	706	1410116	2820236	1408	1408708	3266	2739
13	1410116	2820236	381	764	1410116	2820236	1524	1408592	3562	2826
14	1410116	2820236	411	824	1410116	2820236	1644	1408472	3921	2932
15	1410116	2820236	439	880	1410116	2820236	1756	1408360	3922	2997
16	1410116	2820236	468	938	1410116	2820236	1872	1408244	4203	3264
17	1410116	2820236	496	994	1410116	2820236	1984	1408132	5656	3608
18	1410116	2820236	525	1052	1410116	2820236	2100	1408016	5234	3731
19	1410116	2820236	552	1106	1410116	2820236	2208	1407908	5328	3978
20	1410116	2820236	580	1162	1410116	2820236	2320	1407796	5812	5492

9. Bit-One-Count cover text 9

	Length of Cover Text (Characters)	Size of Cover Text (Bytes)	Length of Hidden Text (Characters)	Size of Hidden Text (Bytes)	Length of Stego Text (Characters)	Size of Stego Text (Bytes)	Used Characters	Unused Characters	Embedding Time (ms)	Extracting Time (ms)
1	1338902	2677808	29	60	1338902	2677808	116	1338786	422	1483
2	1338902	2677808	59	120	1338902	2677808	236	1338666	600	1279
3	1338902	2677808	88	178	1338902	2677808	352	1338550	1000	1254
4	1338902	2677808	118	238	1338902	2677808	472	1338430	1172	1771
5	1338902	2677808	146	294	1338902	2677808	584	1338318	1406	1707
6	1338902	2677808	175	352	1338902	2677808	700	1338202	1547	2037
7	1338902	2677808	202	406	1338902	2677808	808	1338094	2094	1857
8	1338902	2677808	230	462	1338902	2677808	920	1337982	2297	2032
9	1338902	2677808	260	522	1338902	2677808	1040	1337862	2375	2078
10	1338902	2677808	291	584	1338902	2677808	1164	1337738	2641	2492
11	1338902	2677808	321	644	1338902	2677808	1284	1337618	2796	2564
12	1338902	2677808	352	706	1338902	2677808	1408	1337494	3906	2674
13	1338902	2677808	381	764	1338902	2677808	1524	1337378	3359	2886
14	1338902	2677808	411	824	1338902	2677808	1644	1337258	3781	2803
15	1338902	2677808	439	880	1338902	2677808	1756	1337146	4015	3198
16	1338902	2677808	468	938	1338902	2677808	1872	1337030	4078	3035
17	1338902	2677808	496	994	1338902	2677808	1984	1336918	4406	3651
18	1338902	2677808	525	1052	1338902	2677808	2100	1336802	4765	3186
19	1338902	2677808	552	1106	1338902	2677808	2208	1336694	4860	3745
20	1338902	2677808	580	1162	1338902	2677808	2320	1336582	5547	3619

10. Bit-One-Count cover text 10

	Length of Cover Text (Characters)	Size of Cover Text (Bytes)	Length of Hidden Text (Characters)	Size of Hidden Text (Bytes)	Length of Stego Text (Characters)	Size of Stego Text (Bytes)	Used Characters	Unused Characters	Embedding Time (ms)	Extracting Time (ms)
1	1371070	2742144	29	60	1371070	2742144	116	1370954	406	1386
2	1371070	2742144	59	120	1371070	2742144	236	1370834	703	1091
3	1371070	2742144	88	178	1371070	2742144	352	1370718	1000	1416
4	1371070	2742144	118	238	1371070	2742144	472	1370598	1172	1343
5	1371070	2742144	146	294	1371070	2742144	584	1370486	1890	2004
6	1371070	2742144	175	352	1371070	2742144	700	1370370	1641	1931
7	1371070	2742144	202	406	1371070	2742144	808	1370262	1953	2099
8	1371070	2742144	230	462	1371070	2742144	920	1370150	2250	2039
9	1371070	2742144	260	522	1371070	2742144	1040	1370030	2421	2183
10	1371070	2742144	291	584	1371070	2742144	1164	1369906	2484	2426
11	1371070	2742144	321	644	1371070	2742144	1284	1369786	2965	2529
12	1371070	2742144	352	706	1371070	2742144	1408	1369662	3249	2492
13	1371070	2742144	381	764	1371070	2742144	1524	1369546	3781	2747
14	1371070	2742144	411	824	1371070	2742144	1644	1369426	4062	2948
15	1371070	2742144	439	880	1371070	2742144	1756	1369314	4015	2920
16	1371070	2742144	468	938	1371070	2742144	1872	1369198	4375	3189
17	1371070	2742144	496	994	1371070	2742144	1984	1369086	4594	3119
18	1371070	2742144	525	1052	1371070	2742144	2100	1368970	4859	3506
19	1371070	2742144	552	1106	1371070	2742144	2208	1368862	4828	3248
20	1371070	2742144	580	1162	1371070	2742144	2320	1368750	5343	3673

11. Bit-One-Count cover text 11

	Length of Cover Text (Characters)	Size of Cover Text (Bytes)	Length of Hidden Text (Characters)	Size of Hidden Text (Bytes)	Length of Stego Text (Characters)	Size of Stego Text (Bytes)	Used Characters	Unused Characters	Embedding Time (ms)	Extracting Time (ms)
1	1304116	2608236	29	60	1304116	2608236	116	1304000	438	925
2	1304116	2608236	59	120	1304116	2608236	236	1303880	734	1203
3	1304116	2608236	88	178	1304116	2608236	352	1303764	937	1386
4	1304116	2608236	118	238	1304116	2608236	472	1303644	1062	1250
5	1304116	2608236	146	294	1304116	2608236	584	1303532	1406	1395
6	1304116	2608236	175	352	1304116	2608236	700	1303416	1531	2111
7	1304116	2608236	202	406	1304116	2608236	808	1303308	1859	2840
8	1304116	2608236	230	462	1304116	2608236	920	1303196	1922	2244
9	1304116	2608236	260	522	1304116	2608236	1040	1303076	2250	2251
10	1304116	2608236	291	584	1304116	2608236	1164	1302952	2500	2366
11	1304116	2608236	321	644	1304116	2608236	1284	1302832	2657	2437
12	1304116	2608236	352	706	1304116	2608236	1408	1302708	3028	2976
13	1304116	2608236	381	764	1304116	2608236	1524	1302592	3250	3322
14	1304116	2608236	411	824	1304116	2608236	1644	1302472	3609	3055
15	1304116	2608236	439	880	1304116	2608236	1756	1302360	3812	3377
16	1304116	2608236	468	938	1304116	2608236	1872	1302244	4312	2964
17	1304116	2608236	496	994	1304116	2608236	1984	1302132	4156	3691
18	1304116	2608236	525	1052	1304116	2608236	2100	1302016	4437	3103
19	1304116	2608236	552	1106	1304116	2608236	2208	1301908	4671	3440
20	1304116	2608236	580	1162	1304116	2608236	2320	1301796	4953	3382

12. Bit-One-Count cover text 12

	Length of Cover Text (Characters)	Size of Cover Text (Bytes)	Length of Hidden Text (Characters)	Size of Hidden Text (Bytes)	Length of Stego Text (Characters)	Size of Stego Text (Bytes)	Used Characters	Unused Characters	Embedding Time (ms)	Extracting Time (ms)
1	1323583	2647170	29	60	1323583	2647170	116	1323467	421	798
2	1323583	2647170	59	120	1323583	2647170	236	1323347	687	758
3	1323583	2647170	88	178	1323583	2647170	352	1323231	984	787
4	1323583	2647170	118	238	1323583	2647170	472	1323111	1078	1069
5	1323583	2647170	146	294	1323583	2647170	584	1322999	1516	1430
6	1323583	2647170	175	352	1323583	2647170	700	1322883	1531	1206
7	1323583	2647170	202	406	1323583	2647170	808	1322775	1969	1537
8	1323583	2647170	230	462	1323583	2647170	920	1322663	2125	1663
9	1323583	2647170	260	522	1323583	2647170	1040	1322543	2328	1739
10	1323583	2647170	291	584	1323583	2647170	1164	1322419	2765	1859
11	1323583	2647170	321	644	1323583	2647170	1284	1322299	3062	1965
12	1323583	2647170	352	706	1323583	2647170	1408	1322175	3264	1963
13	1323583	2647170	381	764	1323583	2647170	1524	1322059	3562	2035
14	1323583	2647170	411	824	1323583	2647170	1644	1321939	3719	2196
15	1323583	2647170	439	880	1323583	2647170	1756	1321827	4562	2302
16	1323583	2647170	468	938	1323583	2647170	1872	1321711	4125	2504
17	1323583	2647170	496	994	1323583	2647170	1984	1321599	4094	2777
18	1323583	2647170	525	1052	1323583	2647170	2100	1321483	4594	2866
19	1323583	2647170	552	1106	1323583	2647170	2208	1321375	4985	3005
20	1323583	2647170	580	1162	1323583	2647170	2320	1321263	5125	3216

13. Bit-One-Count cover text 13

	Length of Cover Text (Characters)	Size of Cover Text (Bytes)	Length of Hidden Text (Characters)	Size of Hidden Text (Bytes)	Length of Stego Text (Characters)	Size of Stego Text (Bytes)	Used Characters	Unused Characters	Embedding Time (ms)	Extracting Time (ms)
1	1129686	2259376	29	60	1129686	2259376	116	1129570	343	782
2	1129686	2259376	59	120	1129686	2259376	236	1129450	563	758
3	1129686	2259376	88	178	1129686	2259376	352	1129334	859	945
4	1129686	2259376	118	238	1129686	2259376	472	1129214	860	964
5	1129686	2259376	146	294	1129686	2259376	584	1129102	1141	1170
6	1129686	2259376	175	352	1129686	2259376	700	1128986	1407	1061
7	1129686	2259376	202	406	1129686	2259376	808	1128878	1593	1625
8	1129686	2259376	230	462	1129686	2259376	920	1128766	1937	1433
9	1129686	2259376	260	522	1129686	2259376	1040	1128646	2110	1267
10	1129686	2259376	291	584	1129686	2259376	1164	1128522	2156	1634
11	1129686	2259376	321	644	1129686	2259376	1284	1128402	2313	1724

12	1129686	2259376	352	706	1129686	2259376	1408	1128278	2594	1759
13	1129686	2259376	381	764	1129686	2259376	1524	1128162	3453	1890
14	1129686	2259376	411	824	1129686	2259376	1644	1128042	2968	1889
15	1129686	2259376	439	880	1129686	2259376	1756	1127930	3438	2112
16	1129686	2259376	468	938	1129686	2259376	1872	1127814	3607	2176
17	1129686	2259376	496	994	1129686	2259376	1984	1127702	3609	2307
18	1129686	2259376	525	1052	1129686	2259376	2100	1127586	4046	2609
19	1129686	2259376	552	1106	1129686	2259376	2208	1127478	4234	2563
20	1129686	2259376	580	1162	1129686	2259376	2320	1127366	4354	2694

14. Bit-One-Count cover text 14

	Length of Cover Text (Characters)	Size of Cover Text (Bytes)	Length of Hidden Text (Characters)	Size of Hidden Text (Bytes)	Length of Stego Text (Characters)	Size of Stego Text (Bytes)	Used Characters	Unused Characters	Embedding Time (ms)	Extracting Time (ms)
1	1128670	2257344	29	60	1128670	2257344	116	1128554	390	795
2	1128670	2257344	59	120	1128670	2257344	236	1128434	641	790
3	1128670	2257344	88	178	1128670	2257344	352	1128318	906	1053
4	1128670	2257344	118	238	1128670	2257344	472	1128198	968	837
5	1128670	2257344	146	294	1128670	2257344	584	1128086	1265	1126
6	1128670	2257344	175	352	1128670	2257344	700	1127970	1468	1692
7	1128670	2257344	202	406	1128670	2257344	808	1127862	1578	1817
8	1128670	2257344	230	462	1128670	2257344	920	1127750	1891	1806
9	1128670	2257344	260	522	1128670	2257344	1040	1127630	2031	1617
10	1128670	2257344	291	584	1128670	2257344	1164	1127506	2078	1710
11	1128670	2257344	321	644	1128670	2257344	1284	1127386	2422	1819
12	1128670	2257344	352	706	1128670	2257344	1408	1127262	3921	1900
13	1128670	2257344	381	764	1128670	2257344	1524	1127146	2890	2010
14	1128670	2257344	411	824	1128670	2257344	1644	1127026	3062	1918
15	1128670	2257344	439	880	1128670	2257344	1756	1126914	3390	2359
16	1128670	2257344	468	938	1128670	2257344	1872	1126798	3640	2151
17	1128670	2257344	496	994	1128670	2257344	1984	1126686	4016	2240
18	1128670	2257344	525	1052	1128670	2257344	2100	1126570	4094	2278
19	1128670	2257344	552	1106	1128670	2257344	2208	1126462	4375	2661
20	1128670	2257344	580	1162	1128670	2257344	2320	1126350	5015	2402

15. Bit-One-Count cover text 15

	Length of Cover Text (Characters)	Size of Cover Text (Bytes)	Length of Hidden Text (Characters)	Size of Hidden Text (Bytes)	Length of Stego Text (Characters)	Size of Stego Text (Bytes)	Used Characters	Unused Characters	Embedding Time (ms)	Extracting Time (ms)
1	1258664	2517332	29	60	1258664	2517332	116	1258548	391	1008
2	1258664	2517332	59	120	1258664	2517332	236	1258428	734	849
3	1258664	2517332	88	178	1258664	2517332	352	1258312	938	962
4	1258664	2517332	118	238	1258664	2517332	472	1258192	1016	997
5	1258664	2517332	146	294	1258664	2517332	584	1258080	1297	1094
6	1258664	2517332	175	352	1258664	2517332	700	1257964	1576	1697
7	1258664	2517332	202	406	1258664	2517332	808	1257856	1953	1413
8	1258664	2517332	230	462	1258664	2517332	920	1257744	2093	1666
9	1258664	2517332	260	522	1258664	2517332	1040	1257624	2141	1698
10	1258664	2517332	291	584	1258664	2517332	1164	1257500	2453	1926
11	1258664	2517332	321	644	1258664	2517332	1284	1257380	2625	1864
12	1258664	2517332	352	706	1258664	2517332	1408	1257256	2797	1989
13	1258664	2517332	381	764	1258664	2517332	1524	1257140	3187	2213
14	1258664	2517332	411	824	1258664	2517332	1644	1257020	3593	2156
15	1258664	2517332	439	880	1258664	2517332	1756	1256908	3687	2585
16	1258664	2517332	468	938	1258664	2517332	1872	1256792	4000	2710
17	1258664	2517332	496	994	1258664	2517332	1984	1256680	4093	2748
18	1258664	2517332	525	1052	1258664	2517332	2100	1256564	4249	2825
19	1258664	2517332	552	1106	1258664	2517332	2208	1256456	4734	2808
20	1258664	2517332	580	1162	1258664	2517332	2320	1256344	4922	2868

16. Bit-One-Count cover text 16

	Length of Cover Text (Characters)	Size of Cover Text (Bytes)	Length of Hidden Text (Characters)	Size of Hidden Text (Bytes)	Length of Stego Text (Characters)	Size of Stego Text (Bytes)	Used Characters	Unused Characters	Embedding Time (ms)	Extracting Time (ms)
1	1316416	2632836	29	60	1316416	2632836	116	1316300	406	884
2	1316416	2632836	59	120	1316416	2632836	236	1316180	828	943
3	1316416	2632836	88	178	1316416	2632836	352	1316064	953	963
4	1316416	2632836	118	238	1316416	2632836	472	1315944	1348	971
5	1316416	2632836	146	294	1316416	2632836	584	1315832	1611	1607
6	1316416	2632836	175	352	1316416	2632836	700	1315716	1858	1483
7	1316416	2632836	202	406	1316416	2632836	808	1315608	2366	1771
8	1316416	2632836	230	462	1316416	2632836	920	1315496	2687	1457
9	1316416	2632836	260	522	1316416	2632836	1040	1315376	2976	1578
10	1316416	2632836	291	584	1316416	2632836	1164	1315252	3210	1856
11	1316416	2632836	321	644	1316416	2632836	1284	1315132	3614	2123
12	1316416	2632836	352	706	1316416	2632836	1408	1315008	3751	2155
13	1316416	2632836	381	764	1316416	2632836	1524	1314892	4341	2051
14	1316416	2632836	411	824	1316416	2632836	1644	1314772	4995	2312
15	1316416	2632836	439	880	1316416	2632836	1756	1314660	5475	2262
16	1316416	2632836	468	938	1316416	2632836	1872	1314544	5949	2583
17	1316416	2632836	496	994	1316416	2632836	1984	1314432	5923	2511
18	1316416	2632836	525	1052	1316416	2632836	2100	1314316	6506	3099
19	1316416	2632836	552	1106	1316416	2632836	2208	1314208	6888	3135
20	1316416	2632836	580	1162	1316416	2632836	2320	1314096	7187	2757

17. Bit-One-Count cover text 17

	Length of Cover Text (Characters)	Size of Cover Text (Bytes)	Length of Hidden Text (Characters)	Size of Hidden Text (Bytes)	Length of Stego Text (Characters)	Size of Stego Text (Bytes)	Used Characters	Unused Characters	Embedding Time (ms)	Extracting Time (ms)
1	1546910	3093824	29	60	1546910	3093824	116	1546794	507	1075
2	1546910	3093824	59	120	1546910	3093824	236	1546674	938	988
3	1546910	3093824	88	178	1546910	3093824	352	1546558	1176	1169
4	1546910	3093824	118	238	1546910	3093824	472	1546438	1487	1114
5	1546910	3093824	146	294	1546910	3093824	584	1546326	1735	1367
6	1546910	3093824	175	352	1546910	3093824	700	1546210	2189	1839
7	1546910	3093824	202	406	1546910	3093824	808	1546102	2530	1763
8	1546910	3093824	230	462	1546910	3093824	920	1545990	2945	1819
9	1546910	3093824	260	522	1546910	3093824	1040	1545870	3279	1967
10	1546910	3093824	291	584	1546910	3093824	1164	1545746	3535	2171
11	1546910	3093824	321	644	1546910	3093824	1284	1545626	4161	2605
12	1546910	3093824	352	706	1546910	3093824	1408	1545502	4405	2489
13	1546910	3093824	381	764	1546910	3093824	1524	1545386	4911	2631
14	1546910	3093824	411	824	1546910	3093824	1644	1545266	4761	2821
15	1546910	3093824	439	880	1546910	3093824	1756	1545154	5057	3037
16	1546910	3093824	468	938	1546910	3093824	1872	1545038	5475	3151
17	1546910	3093824	496	994	1546910	3093824	1984	1544926	6260	2965
18	1546910	3093824	525	1052	1546910	3093824	2100	1544810	6017	3277
19	1546910	3093824	552	1106	1546910	3093824	2208	1544702	6875	3176
20	1546910	3093824	580	1162	1546910	3093824	2320	1544590	6897	3732

18. Bit-One-Count cover text 18

	Length of Cover Text (Characters)	Size of Cover Text (Bytes)	Length of Hidden Text (Characters)	Size of Hidden Text (Bytes)	Length of Stego Text (Characters)	Size of Stego Text (Bytes)	Used Characters	Unused Characters	Embedding Time (ms)	Extracting Time (ms)
1	1258818	2517640	29	60	1258818	2517640	116	1258702	475	851
2	1258818	2517640	59	120	1258818	2517640	236	1258582	758	796
3	1258818	2517640	88	178	1258818	2517640	352	1258466	1035	1124
4	1258818	2517640	118	238	1258818	2517640	472	1258346	1143	1074
5	1258818	2517640	146	294	1258818	2517640	584	1258234	1397	1489
6	1258818	2517640	175	352	1258818	2517640	700	1258118	1747	1323
7	1258818	2517640	202	406	1258818	2517640	808	1258010	2082	1801
8	1258818	2517640	230	462	1258818	2517640	920	1257898	2259	1643
9	1258818	2517640	260	522	1258818	2517640	1040	1257779	2630	1686
10	1258818	2517640	291	584	1258818	2517640	1164	1257654	2721	1777
11	1258818	2517640	321	644	1258818	2517640	1284	1257534	3133	2128

12	1258818	2517640	352	706	1258818	2517640	1408	1257410	3311	2202
13	1258818	2517640	381	764	1258818	2517640	1524	1257294	3522	2647
14	1258818	2517640	411	824	1258818	2517640	1644	1257174	3777	2515
15	1258818	2517640	439	880	1258818	2517640	1756	1257062	4136	2403
16	1258818	2517640	468	938	1258818	2517640	1872	1256946	5462	2450
17	1258818	2517640	496	994	1258818	2517640	1984	1256834	4501	2342
18	1258818	2517640	525	1052	1258818	2517640	2100	1256718	5351	2830
19	1258818	2517640	552	1106	1258818	2517640	2208	1256610	6004	2591
20	1258818	2517640	580	1162	1258818	2517640	2320	1256498	5562	3057

19. Bit-One-Count cover text 19

	Length of Cover Text (Characters)	Size of Cover Text (Bytes)	Length of Hidden Text (Characters)	Size of Hidden Text (Bytes)	Length of Stego Text (Characters)	Size of Stego Text (Bytes)	Used Characters	Unused Characters	Embedding Time (ms)	Extracting Time (ms)
1	1261779	2523562	29	60	1261779	2523562	116	1261663	457	805
2	1261779	2523562	59	120	1261779	2523562	236	1261543	784	749
3	1261779	2523562	88	178	1261779	2523562	352	1261427	1113	940
4	1261779	2523562	118	238	1261779	2523562	472	1261307	1162	922
5	1261779	2523562	146	294	1261779	2523562	584	1261195	1586	1621
6	1261779	2523562	175	352	1261779	2523562	700	1261079	1783	1493
7	1261779	2523562	202	406	1261779	2523562	808	1260971	2107	1806
8	1261779	2523562	230	462	1261779	2523562	920	1260859	2346	2221
9	1261779	2523562	260	522	1261779	2523562	1040	1260739	2852	1791
10	1261779	2523562	291	584	1261779	2523562	1164	1260615	2962	1719
11	1261779	2523562	321	644	1261779	2523562	1284	1260495	2915	2019
12	1261779	2523562	352	706	1261779	2523562	1408	1260371	3182	1946
13	1261779	2523562	381	764	1261779	2523562	1524	1260255	3919	2176
14	1261779	2523562	411	824	1261779	2523562	1644	1260135	3866	2321
15	1261779	2523562	439	880	1261779	2523562	1756	1260023	4561	2328
16	1261779	2523562	468	938	1261779	2523562	1872	1259907	5298	2420
17	1261779	2523562	496	994	1261779	2523562	1984	1259795	4573	2620
18	1261779	2523562	525	1052	1261779	2523562	2100	1259679	4881	3119
19	1261779	2523562	552	1106	1261779	2523562	2208	1259571	5611	2557
20	1261779	2523562	580	1162	1261779	2523562	2320	1259459	6174	3682

20. Bit-One-Count cover text 20

	Length of Cover Text (Characters)	Size of Cover Text (Bytes)	Length of Hidden Text (Characters)	Size of Hidden Text (Bytes)	Length of Stego Text (Characters)	Size of Stego Text (Bytes)	Used Characters	Unused Characters	Embedding Time (ms)	Extracting Time (ms)
1	1049565	2099134	29	60	1049565	2099134	116	1049449	343	703
2	1049565	2099134	59	120	1049565	2099134	236	1049329	603	783
3	1049565	2099134	88	178	1049565	2099134	352	1049213	975	958
4	1049565	2099134	118	238	1049565	2099134	472	1049093	1075	1018
5	1049565	2099134	146	294	1049565	2099134	584	1048981	1361	1106
6	1049565	2099134	175	352	1049565	2099134	700	1048865	1693	1363
7	1049565	2099134	202	406	1049565	2099134	808	1048757	2196	1552
8	1049565	2099134	230	462	1049565	2099134	920	1048645	2158	1674
9	1049565	2099134	260	522	1049565	2099134	1040	1048525	2234	1459
10	1049565	2099134	291	584	1049565	2099134	1164	1048401	2508	2041
11	1049565	2099134	321	644	1049565	2099134	1284	1048281	3063	2038
12	1049565	2099134	352	706	1049565	2099134	1408	1048157	3048	1666
13	1049565	2099134	381	764	1049565	2099134	1524	1048041	3415	1846
14	1049565	2099134	411	824	1049565	2099134	1644	1047921	3734	1898
15	1049565	2099134	439	880	1049565	2099134	1756	1047809	3915	1915
16	1049565	2099134	468	938	1049565	2099134	1872	1047693	4277	2097
17	1049565	2099134	496	994	1049565	2099134	1984	1047581	4492	2247
18	1049565	2099134	525	1052	1049565	2099134	2100	1047465	4614	2295
19	1049565	2099134	552	1106	1049565	2099134	2208	1047357	5208	2230
20	1049565	2099134	580	1162	1049565	2099134	2320	1047245	6551	2380

Appendix B

Experimental Result of Second Technique; Extended-1

1. Extended-1 cover text 1

	Length of Cover Text (Characters)	Size of Cover Text (Bytes)	Length of Hidden Text (Characters)	Size of Hidden Text (Bytes)	Length of Stego Text (Characters)	Size of Stego Text (Bytes)	Used Characters	Unused Characters	Embedding Time (ms)	Extracting Time (ms)
1	1254442	2508888	29	60	1254442	2508888	29	1254413	141	534
2	1254442	2508888	59	120	1254442	2508888	59	1254383	250	460
3	1254442	2508888	88	178	1254442	2508888	88	1254354	297	480
4	1254442	2508888	118	238	1254442	2508888	118	1254324	410	469
5	1254442	2508888	146	294	1254442	2508888	146	1254296	485	593
6	1254442	2508888	175	352	1254442	2508888	175	1254267	547	495
7	1254442	2508888	202	406	1254442	2508888	202	1254240	625	510
8	1254442	2508888	230	462	1254442	2508888	230	1254212	734	641
9	1254442	2508888	260	522	1254442	2508888	260	1254182	719	560
10	1254442	2508888	291	584	1254442	2508888	291	1254151	719	789
11	1254442	2508888	321	644	1254442	2508888	321	1254121	796	653
12	1254442	2508888	352	706	1254442	2508888	352	1254090	874	723
13	1254442	2508888	381	764	1254442	2508888	381	1254061	906	473
14	1254442	2508888	411	824	1254442	2508888	411	1254031	1031	505
15	1254442	2508888	439	880	1254442	2508888	439	1254003	1047	508
16	1254442	2508888	468	938	1254442	2508888	468	1253974	1157	529
17	1254442	2508888	496	994	1254442	2508888	496	1253946	1250	914
18	1254442	2508888	525	1052	1254442	2508888	525	1253917	1297	894
19	1254442	2508888	552	1106	1254442	2508888	552	1253890	1328	547
20	1254442	2508888	580	1162	1254442	2508888	580	1253862	1297	482

2. Extended-1 cover text 2

	Length of Cover Text (Characters)	Size of Cover Text (Bytes)	Length of Hidden Text (Characters)	Size of Hidden Text (Bytes)	Length of Stego Text (Characters)	Size of Stego Text (Bytes)	Used Characters	Unused Characters	Embedding Time (ms)	Extracting Time (ms)
1	1217494	2434992	29	60	1217494	2434992	29	1217465	125	673
2	1217494	2434992	59	120	1217494	2434992	59	1217435	219	740
3	1217494	2434992	88	178	1217494	2434992	88	1217406	234	680
4	1217494	2434992	118	238	1217494	2434992	118	1217376	297	761
5	1217494	2434992	146	294	1217494	2434992	146	1217348	391	599
6	1217494	2434992	175	352	1217494	2434992	175	1217319	438	671
7	1217494	2434992	202	406	1217494	2434992	202	1217292	562	647
8	1217494	2434992	230	462	1217494	2434992	230	1217264	670	692
9	1217494	2434992	260	522	1217494	2434992	260	1217234	687	743
10	1217494	2434992	291	584	1217494	2434992	291	1217203	735	776
11	1217494	2434992	321	644	1217494	2434992	321	1217173	766	555
12	1217494	2434992	352	706	1217494	2434992	352	1217142	734	863
13	1217494	2434992	381	764	1217494	2434992	381	1217113	860	701
14	1217494	2434992	411	824	1217494	2434992	411	1217083	890	661
15	1217494	2434992	439	880	1217494	2434992	439	1217055	938	633
16	1217494	2434992	468	938	1217494	2434992	468	1217026	1016	736
17	1217494	2434992	496	994	1217494	2434992	496	1216998	1047	778
18	1217494	2434992	525	1052	1217494	2434992	525	1216969	1188	820
19	1217494	2434992	552	1106	1217494	2434992	552	1216942	1203	891
20	1217494	2434992	580	1162	1217494	2434992	580	1216914	1297	915

3. Extended-1 cover text 3

	Length of Cover Text (Characters)	Size of Cover Text (Bytes)	Length of Hidden Text (Characters)	Size of Hidden Text (Bytes)	Length of Stego Text (Characters)	Size of Stego Text (Bytes)	Used Characters	Unused Characters	Embedding Time (ms)	Extracting Time (ms)
1	1298720	2597444	29	60	1298720	2597444	29	1298691	125	919
2	1298720	2597444	59	120	1298720	2597444	59	1298661	234	725
3	1298720	2597444	88	178	1298720	2597444	88	1298632	297	965

4	1298720	2597444	118	238	1298720	2597444	118	1298602	406	848
5	1298720	2597444	146	294	1298720	2597444	146	1298574	515	712
6	1298720	2597444	175	352	1298720	2597444	175	1298545	594	809
7	1298720	2597444	202	406	1298720	2597444	202	1298518	608	691
8	1298720	2597444	230	462	1298720	2597444	230	1298490	610	874
9	1298720	2597444	260	522	1298720	2597444	260	1298460	672	750
10	1298720	2597444	291	584	1298720	2597444	291	1298429	796	643
11	1298720	2597444	321	644	1298720	2597444	321	1298399	813	775
12	1298720	2597444	352	706	1298720	2597444	352	1298368	829	535
13	1298720	2597444	381	764	1298720	2597444	381	1298339	922	642
14	1298720	2597444	411	824	1298720	2597444	411	1298309	969	773
15	1298720	2597444	439	880	1298720	2597444	439	1298281	1202	503
16	1298720	2597444	468	938	1298720	2597444	468	1298252	1204	525
17	1298720	2597444	496	994	1298720	2597444	496	1298224	1237	779
18	1298720	2597444	525	1052	1298720	2597444	525	1298195	1345	757
19	1298720	2597444	552	1106	1298720	2597444	552	1298168	1422	507
20	1298720	2597444	580	1162	1298720	2597444	580	1298140	1438	1021

4. Extended-1 cover text 4

	Length of Cover Text (Characters)	Size of Cover Text (Bytes)	Length of Hidden Text (Characters)	Size of Hidden Text (Bytes)	Length of Stego Text (Characters)	Size of Stego Text (Bytes)	Used Characters	Unused Characters	Embedding Time (ms)	Extracting Time (ms)
1	1321622	2643248	29	60	1321622	2643248	29	1321593	125	747
2	1321622	2643248	59	120	1321622	2643248	59	1321563	203	798
3	1321622	2643248	88	178	1321622	2643248	88	1321534	312	881
4	1321622	2643248	118	238	1321622	2643248	118	1321504	422	765
5	1321622	2643248	146	294	1321622	2643248	146	1321476	500	744
6	1321622	2643248	175	352	1321622	2643248	175	1321447	484	641
7	1321622	2643248	202	406	1321622	2643248	202	1321420	563	739
8	1321622	2643248	230	462	1321622	2643248	230	1321392	641	769
9	1321622	2643248	260	522	1321622	2643248	260	1321362	610	833
10	1321622	2643248	291	584	1321622	2643248	291	1321331	719	1073
11	1321622	2643248	321	644	1321622	2643248	321	1321301	891	826
12	1321622	2643248	352	706	1321622	2643248	352	1321270	828	645
13	1321622	2643248	381	764	1321622	2643248	381	1321241	953	711
14	1321622	2643248	411	824	1321622	2643248	411	1321211	1094	742
15	1321622	2643248	439	880	1321622	2643248	439	1321183	1031	381
16	1321622	2643248	468	938	1321622	2643248	468	1321154	1094	686
17	1321622	2643248	496	994	1321622	2643248	496	1321126	1219	821
18	1321622	2643248	525	1052	1321622	2643248	525	1321097	1265	805
19	1321622	2643248	552	1106	1321622	2643248	552	1321070	1218	781
20	1321622	2643248	580	1162	1321622	2643248	580	1321042	1344	758

5. Extended-1 cover text 5

	Length of Cover Text (Characters)	Size of Cover Text (Bytes)	Length of Hidden Text (Characters)	Size of Hidden Text (Bytes)	Length of Stego Text (Characters)	Size of Stego Text (Bytes)	Used Characters	Unused Characters	Embedding Time (ms)	Extracting Time (ms)
1	1388643	2777290	29	60	1388643	2777290	29	1388614	160	760
2	1388643	2777290	59	120	1388643	2777290	59	1388584	219	740
3	1388643	2777290	88	178	1388643	2777290	88	1388555	313	718
4	1388643	2777290	118	238	1388643	2777290	118	1388525	453	620
5	1388643	2777290	146	294	1388643	2777290	146	1388497	527	739
6	1388643	2777290	175	352	1388643	2777290	175	1388468	563	848
7	1388643	2777290	202	406	1388643	2777290	202	1388441	578	713
8	1388643	2777290	230	462	1388643	2777290	230	1388413	657	676
9	1388643	2777290	260	522	1388643	2777290	260	1388383	802	780
10	1388643	2777290	291	584	1388643	2777290	291	1388352	767	694
11	1388643	2777290	321	644	1388643	2777290	321	1388322	781	758
12	1388643	2777290	352	706	1388643	2777290	352	1388291	797	608
13	1388643	2777290	381	764	1388643	2777290	381	1388262	937	421
14	1388643	2777290	411	824	1388643	2777290	411	1388232	1189	490
15	1388643	2777290	439	880	1388643	2777290	439	1388204	1080	662
16	1388643	2777290	468	938	1388643	2777290	468	1388175	1250	422
17	1388643	2777290	496	994	1388643	2777290	496	1388147	1203	589
18	1388643	2777290	525	1052	1388643	2777290	525	1388118	1267	705
19	1388643	2777290	552	1106	1388643	2777290	552	1388091	1407	842
20	1388643	2777290	580	1162	1388643	2777290	580	1388063	2204	753

6. Extended-1 cover text 6

	Length of Cover Text (Characters)	Size of Cover Text (Bytes)	Length of Hidden Text (Characters)	Size of Hidden Text (Bytes)	Length of Stego Text (Characters)	Size of Stego Text (Bytes)	Used Characters	Unused Characters	Embedding Time (ms)	Extracting Time (ms)
1	1254764	2509532	29	60	1254764	2509532	29	1254735	179	720
2	1254764	2509532	59	120	1254764	2509532	59	1254705	315	434
3	1254764	2509532	88	178	1254764	2509532	88	1254676	336	611
4	1254764	2509532	118	238	1254764	2509532	118	1254646	470	414
5	1254764	2509532	146	294	1254764	2509532	146	1254618	583	645
6	1254764	2509532	175	352	1254764	2509532	175	1254589	650	647
7	1254764	2509532	202	406	1254764	2509532	202	1254562	705	421
8	1254764	2509532	230	462	1254764	2509532	230	1254534	712	702
9	1254764	2509532	260	522	1254764	2509532	260	1254504	713	726
10	1254764	2509532	291	584	1254764	2509532	291	1254473	857	670
11	1254764	2509532	321	644	1254764	2509532	321	1254443	862	672
12	1254764	2509532	352	706	1254764	2509532	352	1254412	881	634
13	1254764	2509532	381	764	1254764	2509532	381	1254383	1047	806
14	1254764	2509532	411	824	1254764	2509532	411	1254353	1125	650
15	1254764	2509532	439	880	1254764	2509532	439	1254325	1186	508
16	1254764	2509532	468	938	1254764	2509532	468	1254296	1105	398
17	1254764	2509532	496	994	1254764	2509532	496	1254268	1279	460
18	1254764	2509532	525	1052	1254764	2509532	525	1254239	1502	559
19	1254764	2509532	552	1106	1254764	2509532	552	1254212	1455	564
20	1254764	2509532	580	1162	1254764	2509532	580	1254184	1506	556

7. Extended-1 cover text 7

	Length of Cover Text (Characters)	Size of Cover Text (Bytes)	Length of Hidden Text (Characters)	Size of Hidden Text (Bytes)	Length of Stego Text (Characters)	Size of Stego Text (Bytes)	Used Characters	Unused Characters	Embedding Time (ms)	Extracting Time (ms)
1	1256771	2513546	29	60	1256771	2513546	29	1256742	169	697
2	1256771	2513546	59	120	1256771	2513546	59	1256712	252	522
3	1256771	2513546	88	178	1256771	2513546	88	1256683	386	765
4	1256771	2513546	118	238	1256771	2513546	118	1256653	439	734
5	1256771	2513546	146	294	1256771	2513546	146	1256625	580	696
6	1256771	2513546	175	352	1256771	2513546	175	1256596	572	525
7	1256771	2513546	202	406	1256771	2513546	202	1256569	615	703
8	1256771	2513546	230	462	1256771	2513546	230	1256541	640	600
9	1256771	2513546	260	522	1256771	2513546	260	1256511	682	650
10	1256771	2513546	291	584	1256771	2513546	291	1256480	828	662
11	1256771	2513546	321	644	1256771	2513546	321	1256450	908	618
12	1256771	2513546	352	706	1256771	2513546	352	1256419	916	801
13	1256771	2513546	381	764	1256771	2513546	381	1256390	994	684
14	1256771	2513546	411	824	1256771	2513546	411	1256360	1075	810
15	1256771	2513546	439	880	1256771	2513546	439	1256332	1137	690
16	1256771	2513546	468	938	1256771	2513546	468	1256303	1261	724
17	1256771	2513546	496	994	1256771	2513546	496	1256275	1350	745
18	1256771	2513546	525	1052	1256771	2513546	525	1256246	1521	654
19	1256771	2513546	552	1106	1256771	2513546	552	1256219	1453	705
20	1256771	2513546	580	1162	1256771	2513546	580	1256191	1553	794

8. Extended-1 cover text 8

	Length of Cover Text (Characters)	Size of Cover Text (Bytes)	Length of Hidden Text (Characters)	Size of Hidden Text (Bytes)	Length of Stego Text (Characters)	Size of Stego Text (Bytes)	Used Characters	Unused Characters	Embedding Time (ms)	Extracting Time (ms)
1	1410116	2820236	29	60	1410116	2820236	29	1410087	142	560
2	1410116	2820236	59	120	1410116	2820236	59	1410057	247	440
3	1410116	2820236	88	178	1410116	2820236	88	1410028	336	559
4	1410116	2820236	118	238	1410116	2820236	118	1409998	442	699
5	1410116	2820236	146	294	1410116	2820236	146	1409970	572	520
6	1410116	2820236	175	352	1410116	2820236	175	1409941	631	440
7	1410116	2820236	202	406	1410116	2820236	202	1409914	647	759
8	1410116	2820236	230	462	1410116	2820236	230	1409886	650	512
9	1410116	2820236	260	522	1410116	2820236	260	1409856	668	560
10	1410116	2820236	291	584	1410116	2820236	291	1409825	916	647

11	1410116	2820236	321	644	1410116	2820236	321	1409795	974	661
12	1410116	2820236	352	706	1410116	2820236	352	1409764	1039	696
13	1410116	2820236	381	764	1410116	2820236	381	1409735	1038	512
14	1410116	2820236	411	824	1410116	2820236	411	1409705	1078	656
15	1410116	2820236	439	880	1410116	2820236	439	1409677	1238	616
16	1410116	2820236	468	938	1410116	2820236	468	1409648	1528	616
17	1410116	2820236	496	994	1410116	2820236	496	1409620	1249	636
18	1410116	2820236	525	1052	1410116	2820236	525	1409591	1373	572
19	1410116	2820236	552	1106	1410116	2820236	552	1409564	1500	504
20	1410116	2820236	580	1162	1410116	2820236	580	1409536	1570	448

9. Extended-1 cover text 9

	Length of Cover Text (Characters)	Size of Cover Text (Bytes)	Length of Hidden Text (Characters)	Size of Hidden Text (Bytes)	Length of Stego Text (Characters)	Size of Stego Text (Bytes)	Used Characters	Unused Characters	Embedding Time (ms)	Extracting Time (ms)
1	1338902	2677808	29	60	1338902	2677808	29	1338873	323	944
2	1338902	2677808	59	120	1338902	2677808	59	1338843	447	776
3	1338902	2677808	88	178	1338902	2677808	88	1338814	449	783
4	1338902	2677808	118	238	1338902	2677808	118	1338784	547	758
5	1338902	2677808	146	294	1338902	2677808	146	1338754	499	723
6	1338902	2677808	175	352	1338902	2677808	175	1338727	602	664
7	1338902	2677808	202	406	1338902	2677808	202	1338700	732	759
8	1338902	2677808	230	462	1338902	2677808	230	1338672	758	704
9	1338902	2677808	260	522	1338902	2677808	260	1338642	861	722
10	1338902	2677808	291	584	1338902	2677808	291	1338611	1185	736
11	1338902	2677808	321	644	1338902	2677808	321	1338581	993	987
12	1338902	2677808	352	706	1338902	2677808	352	1338550	1072	767
13	1338902	2677808	381	764	1338902	2677808	381	1338521	1109	682
14	1338902	2677808	411	824	1338902	2677808	411	1338491	1229	733
15	1338902	2677808	439	880	1338902	2677808	439	1338463	1266	621
16	1338902	2677808	468	938	1338902	2677808	468	1338434	1633	720
17	1338902	2677808	496	994	1338902	2677808	496	1338406	1737	712
18	1338902	2677808	525	1052	1338902	2677808	525	1338377	1800	736
19	1338902	2677808	552	1106	1338902	2677808	552	1338350	1872	787
20	1338902	2677808	580	1162	1338902	2677808	580	1338322	2031	684

10. Extended-1 cover text 10

	Length of Cover Text (Characters)	Size of Cover Text (Bytes)	Length of Hidden Text (Characters)	Size of Hidden Text (Bytes)	Length of Stego Text (Characters)	Size of Stego Text (Bytes)	Used Characters	Unused Characters	Embedding Time (ms)	Extracting Time (ms)
1	1371070	2742144	29	60	1371070	2742144	29	1371041	195	502
2	1371070	2742144	59	120	1371070	2742144	59	1371011	242	429
3	1371070	2742144	88	178	1371070	2742144	88	1370982	392	525
4	1371070	2742144	118	238	1371070	2742144	118	1370952	402	519
5	1371070	2742144	146	294	1371070	2742144	146	1370924	481	476
6	1371070	2742144	175	352	1371070	2742144	175	1370895	495	453
7	1371070	2742144	202	406	1371070	2742144	202	1370868	565	587
8	1371070	2742144	230	462	1371070	2742144	230	1370840	613	424
9	1371070	2742144	260	522	1371070	2742144	260	1370810	684	523
10	1371070	2742144	291	584	1371070	2742144	291	1370779	708	437
11	1371070	2742144	321	644	1371070	2742144	321	1370749	861	856
12	1371070	2742144	352	706	1371070	2742144	352	1370718	923	479
13	1371070	2742144	381	764	1371070	2742144	381	1370689	1033	528
14	1371070	2742144	411	824	1371070	2742144	411	1370659	1078	508
15	1371070	2742144	439	880	1371070	2742144	439	1370631	1147	709
16	1371070	2742144	468	938	1371070	2742144	468	1370602	1215	735
17	1371070	2742144	496	994	1371070	2742144	496	1370574	1351	628
18	1371070	2742144	525	1052	1371070	2742144	525	1370545	1355	617
19	1371070	2742144	552	1106	1371070	2742144	552	1370518	1479	836
20	1371070	2742144	580	1162	1371070	2742144	580	1370490	1744	655

11. Extended-1 cover text 11

	Length of Cover Text (Characters)	Size of Cover Text (Bytes)	Length of Hidden Text (Characters)	Size of Hidden Text (Bytes)	Length of Stego Text (Characters)	Size of Stego Text (Bytes)	Used Characters	Unused Characters	Embedding Time (ms)	Extracting Time (ms)
1	1304116	2608236	29	60	1304116	2608236	29	1304087	165	454
2	1304116	2608236	59	120	1304116	2608236	59	1304057	230	865
3	1304116	2608236	88	178	1304116	2608236	88	1304028	317	614
4	1304116	2608236	118	238	1304116	2608236	118	1303998	467	663
5	1304116	2608236	146	294	1304116	2608236	146	1303970	476	455
6	1304116	2608236	175	352	1304116	2608236	175	1303941	578	527
7	1304116	2608236	202	406	1304116	2608236	202	1303914	584	724
8	1304116	2608236	230	462	1304116	2608236	230	1303886	712	436
9	1304116	2608236	260	522	1304116	2608236	260	1303856	804	485
10	1304116	2608236	291	584	1304116	2608236	291	1303825	875	525
11	1304116	2608236	321	644	1304116	2608236	321	1303795	933	507
12	1304116	2608236	352	706	1304116	2608236	352	1303764	998	836
13	1304116	2608236	381	764	1304116	2608236	381	1303735	1098	679
14	1304116	2608236	411	824	1304116	2608236	411	1303705	1152	584
15	1304116	2608236	439	880	1304116	2608236	439	1303677	1221	598
16	1304116	2608236	468	938	1304116	2608236	468	1303648	1283	501
17	1304116	2608236	496	994	1304116	2608236	496	1303620	1414	658
18	1304116	2608236	525	1052	1304116	2608236	525	1303591	1502	964
19	1304116	2608236	552	1106	1304116	2608236	552	1303564	2229	985
20	1304116	2608236	580	1162	1304116	2608236	580	1303536	2541	850

12. Extended-1 cover text 12

	Length of Cover Text (Characters)	Size of Cover Text (Bytes)	Length of Hidden Text (Characters)	Size of Hidden Text (Bytes)	Length of Stego Text (Characters)	Size of Stego Text (Bytes)	Used Characters	Unused Characters	Embedding Time (ms)	Extracting Time (ms)
1	1323583	2647170	29	60	1323583	2647170	29	1323554	281	755
2	1323583	2647170	59	120	1323583	2647170	59	1323524	328	540
3	1323583	2647170	88	178	1323583	2647170	88	1323495	390	445
4	1323583	2647170	118	238	1323583	2647170	118	1323465	437	510
5	1323583	2647170	146	294	1323583	2647170	146	1323437	532	642
6	1323583	2647170	175	352	1323583	2647170	175	1323408	610	758
7	1323583	2647170	202	406	1323583	2647170	202	1323381	578	611
8	1323583	2647170	230	462	1323583	2647170	230	1323353	578	520
9	1323583	2647170	260	522	1323583	2647170	260	1323323	703	750
10	1323583	2647170	291	584	1323583	2647170	291	1323292	766	854
11	1323583	2647170	321	644	1323583	2647170	321	1323262	786	642
12	1323583	2647170	352	706	1323583	2647170	352	1323231	906	811
13	1323583	2647170	381	764	1323583	2647170	381	1323202	984	789
14	1323583	2647170	411	824	1323583	2647170	411	1323172	1014	760
15	1323583	2647170	439	880	1323583	2647170	439	1323144	1141	664
16	1323583	2647170	468	938	1323583	2647170	468	1323115	1078	805
17	1323583	2647170	496	994	1323583	2647170	496	1323087	1156	660
18	1323583	2647170	525	1052	1323583	2647170	525	1323058	1156	530
19	1323583	2647170	552	1106	1323583	2647170	552	1323031	1172	741
20	1323583	2647170	580	1162	1323583	2647170	580	1323003	1235	918

13. Extended-1 cover text 13

	Length of Cover Text (Characters)	Size of Cover Text (Bytes)	Length of Hidden Text (Characters)	Size of Hidden Text (Bytes)	Length of Stego Text (Characters)	Size of Stego Text (Bytes)	Used Characters	Unused Characters	Embedding Time (ms)	Extracting Time (ms)
1	1129686	2259376	29	60	1129686	2259376	29	1129657	125	559
2	1129686	2259376	59	120	1129686	2259376	59	1129627	187	621
3	1129686	2259376	88	178	1129686	2259376	88	1129598	265	420
4	1129686	2259376	118	238	1129686	2259376	118	1129568	328	461
5	1129686	2259376	146	294	1129686	2259376	146	1129540	468	642
6	1129686	2259376	175	352	1129686	2259376	175	1129511	454	357
7	1129686	2259376	202	406	1129686	2259376	202	1129484	535	512
8	1129686	2259376	230	462	1129686	2259376	230	1129456	515	515
9	1129686	2259376	260	522	1129686	2259376	260	1129426	578	828
10	1129686	2259376	291	584	1129686	2259376	291	1129395	609	438
11	1129686	2259376	321	644	1129686	2259376	321	1129365	703	740

12	1129686	2259376	352	706	1129686	2259376	352	1129334	750	636
13	1129686	2259376	381	764	1129686	2259376	381	1129305	765	675
14	1129686	2259376	411	824	1129686	2259376	411	1129275	875	524
15	1129686	2259376	439	880	1129686	2259376	439	1129247	922	886
16	1129686	2259376	468	938	1129686	2259376	468	1129218	922	919
17	1129686	2259376	496	994	1129686	2259376	496	1129190	1047	781
18	1129686	2259376	525	1052	1129686	2259376	525	1129161	1110	730
19	1129686	2259376	552	1106	1129686	2259376	552	1129134	1094	830
20	1129686	2259376	580	1162	1129686	2259376	580	1129106	1156	450

14. Extended-1 cover text 14

	Length of Cover Text (Characters)	Size of Cover Text (Bytes)	Length of Hidden Text (Characters)	Size of Hidden Text (Bytes)	Length of Stego Text (Characters)	Size of Stego Text (Bytes)	Used Characters	Unused Characters	Embedding Time (ms)	Extracting Time (ms)
1	1128670	2257344	29	60	1128670	2257344	29	1128641	109	799
2	1128670	2257344	59	120	1128670	2257344	59	1128611	172	509
3	1128670	2257344	88	178	1128670	2257344	88	1128582	218	390
4	1128670	2257344	118	238	1128670	2257344	118	1128552	328	645
5	1128670	2257344	146	294	1128670	2257344	146	1128524	422	418
6	1128670	2257344	175	352	1128670	2257344	175	1128495	531	601
7	1128670	2257344	202	406	1128670	2257344	202	1128468	560	519
8	1128670	2257344	230	462	1128670	2257344	230	1128440	577	568
9	1128670	2257344	260	522	1128670	2257344	260	1128410	594	546
10	1128670	2257344	291	584	1128670	2257344	291	1128379	640	470
11	1128670	2257344	321	644	1128670	2257344	321	1128349	703	580
12	1128670	2257344	352	706	1128670	2257344	352	1128318	703	486
13	1128670	2257344	381	764	1128670	2257344	381	1128289	766	929
14	1128670	2257344	411	824	1128670	2257344	411	1128259	797	657
15	1128670	2257344	439	880	1128670	2257344	439	1128231	921	833
16	1128670	2257344	468	938	1128670	2257344	468	1128202	890	593
17	1128670	2257344	496	994	1128670	2257344	496	1128174	969	688
18	1128670	2257344	525	1052	1128670	2257344	525	1128145	1109	780
19	1128670	2257344	552	1106	1128670	2257344	552	1128118	1147	654
20	1128670	2257344	580	1162	1128670	2257344	580	1128090	1163	704

15. Extended-1 cover text 15

	Length of Cover Text (Characters)	Size of Cover Text (Bytes)	Length of Hidden Text (Characters)	Size of Hidden Text (Bytes)	Length of Stego Text (Characters)	Size of Stego Text (Bytes)	Used Characters	Unused Characters	Embedding Time (ms)	Extracting Time (ms)
1	1258664	2517332	29	60	1258664	2517332	29	1258635	125	809
2	1258664	2517332	59	120	1258664	2517332	59	1258605	203	495
3	1258664	2517332	88	178	1258664	2517332	88	1258576	235	580
4	1258664	2517332	118	238	1258664	2517332	118	1258546	328	520
5	1258664	2517332	146	294	1258664	2517332	146	1258518	391	575
6	1258664	2517332	175	352	1258664	2517332	175	1258489	438	320
7	1258664	2517332	202	406	1258664	2517332	202	1258462	468	419
8	1258664	2517332	230	462	1258664	2517332	230	1258434	532	429
9	1258664	2517332	260	522	1258664	2517332	260	1258404	625	806
10	1258664	2517332	291	584	1258664	2517332	291	1258373	687	395
11	1258664	2517332	321	644	1258664	2517332	321	1258343	691	712
12	1258664	2517332	352	706	1258664	2517332	352	1258312	796	1003
13	1258664	2517332	381	764	1258664	2517332	381	1258283	828	690
14	1258664	2517332	411	824	1258664	2517332	411	1258253	890	846
15	1258664	2517332	439	880	1258664	2517332	439	1258225	984	675
16	1258664	2517332	468	938	1258664	2517332	468	1258196	1000	695
17	1258664	2517332	496	994	1258664	2517332	496	1258168	1141	511
18	1258664	2517332	525	1052	1258664	2517332	525	1258139	1093	740
19	1258664	2517332	552	1106	1258664	2517332	552	1258112	1156	757
20	1258664	2517332	580	1162	1258664	2517332	580	1258084	1797	732

16. Extended-1 cover text 16

	Length of Cover Text (Characters)	Size of Cover Text (Bytes)	Length of Hidden Text (Characters)	Size of Hidden Text (Bytes)	Length of Stego Text (Characters)	Size of Stego Text (Bytes)	Used Characters	Unused Characters	Embedding Time (ms)	Extracting Time (ms)
1	1316416	2632836	29	60	1316416	2632836	29	1316387	125	645
2	1316416	2632836	59	120	1316416	2632836	59	1316357	234	930
3	1316416	2632836	88	178	1316416	2632836	88	1316328	311	785
4	1316416	2632836	118	238	1316416	2632836	118	1316298	360	440
5	1316416	2632836	146	294	1316416	2632836	146	1316270	515	730
6	1316416	2632836	175	352	1316416	2632836	175	1316241	540	656
7	1316416	2632836	202	406	1316416	2632836	202	1316214	516	565
8	1316416	2632836	230	462	1316416	2632836	230	1316186	625	778
9	1316416	2632836	260	522	1316416	2632836	260	1316156	671	980
10	1316416	2632836	291	584	1316416	2632836	291	1316125	750	676
11	1316416	2632836	321	644	1316416	2632836	321	1316095	749	740
12	1316416	2632836	352	706	1316416	2632836	352	1316064	922	675
13	1316416	2632836	381	764	1316416	2632836	381	1316035	953	900
14	1316416	2632836	411	824	1316416	2632836	411	1316005	1041	955
15	1316416	2632836	439	880	1316416	2632836	439	1315977	1016	969
16	1316416	2632836	468	938	1316416	2632836	468	1315948	1125	836
17	1316416	2632836	496	994	1316416	2632836	496	1315920	1063	947
18	1316416	2632836	525	1052	1316416	2632836	525	1315891	1188	885
19	1316416	2632836	552	1106	1316416	2632836	552	1315864	1360	783
20	1316416	2632836	580	1162	1316416	2632836	580	1315836	1377	818

17. Extended-1 cover text 17

	Length of Cover Text (Characters)	Size of Cover Text (Bytes)	Length of Hidden Text (Characters)	Size of Hidden Text (Bytes)	Length of Stego Text (Characters)	Size of Stego Text (Bytes)	Used Characters	Unused Characters	Embedding Time (ms)	Extracting Time (ms)
1	1546910	3093824	29	60	1546910	3093824	29	1546881	156	866
2	1546910	3093824	59	120	1546910	3093824	59	1546851	265	874
3	1546910	3093824	88	178	1546910	3093824	88	1546822	313	1104
4	1546910	3093824	118	238	1546910	3093824	118	1546792	421	735
5	1546910	3093824	146	294	1546910	3093824	146	1546764	544	669
6	1546910	3093824	175	352	1546910	3093824	175	1546735	610	776
7	1546910	3093824	202	406	1546910	3093824	202	1546708	609	775
8	1546910	3093824	230	462	1546910	3093824	230	1546680	625	1130
9	1546910	3093824	260	522	1546910	3093824	260	1546650	766	995
10	1546910	3093824	291	584	1546910	3093824	291	1546619	922	883
11	1546910	3093824	321	644	1546910	3093824	321	1546589	906	721
12	1546910	3093824	352	706	1546910	3093824	352	1546558	1047	1306
13	1546910	3093824	381	764	1546910	3093824	381	1546529	1125	870
14	1546910	3093824	411	824	1546910	3093824	411	1546499	1078	1155
15	1546910	3093824	439	880	1546910	3093824	439	1546471	1203	829
16	1546910	3093824	468	938	1546910	3093824	468	1546442	1375	722
17	1546910	3093824	496	994	1546910	3093824	496	1546414	1375	901
18	1546910	3093824	525	1052	1546910	3093824	525	1546385	1984	936
19	1546910	3093824	552	1106	1546910	3093824	552	1546358	1531	844
20	1546910	3093824	580	1162	1546910	3093824	580	1546330	1656	831

18. Extended-1 cover text 18

	Length of Cover Text (Characters)	Size of Cover Text (Bytes)	Length of Hidden Text (Characters)	Size of Hidden Text (Bytes)	Length of Stego Text (Characters)	Size of Stego Text (Bytes)	Used Characters	Unused Characters	Embedding Time (ms)	Extracting Time (ms)
1	1258818	2517640	29	60	1258818	2517640	29	1258789	157	775
2	1258818	2517640	59	120	1258818	2517640	59	1258759	235	833
3	1258818	2517640	88	178	1258818	2517640	88	1258730	328	666
4	1258818	2517640	118	238	1258818	2517640	118	1258700	391	742
5	1258818	2517640	146	294	1258818	2517640	146	1258672	437	618
6	1258818	2517640	175	352	1258818	2517640	175	1258643	453	707
7	1258818	2517640	202	406	1258818	2517640	202	1258616	468	529
8	1258818	2517640	230	462	1258818	2517640	230	1258588	563	708
9	1258818	2517640	260	522	1258818	2517640	260	1258558	594	645
10	1258818	2517640	291	584	1258818	2517640	291	1258527	687	959
11	1258818	2517640	321	644	1258818	2517640	321	1258497	750	757

12	1258818	2517640	352	706	1258818	2517640	352	1258466	841	745
13	1258818	2517640	381	764	1258818	2517640	381	1258437	874	735
14	1258818	2517640	411	824	1258818	2517640	411	1258407	891	916
15	1258818	2517640	439	880	1258818	2517640	439	1258379	985	959
16	1258818	2517640	468	938	1258818	2517640	468	1258350	938	957
17	1258818	2517640	496	994	1258818	2517640	496	1258322	1047	1025
18	1258818	2517640	525	1052	1258818	2517640	525	1258293	1235	976
19	1258818	2517640	552	1106	1258818	2517640	552	1258266	1265	832
20	1258818	2517640	580	1162	1258818	2517640	580	1258238	1359	688

19. Extended-1 cover text 19

	Length of Cover Text (Characters)	Size of Cover Text (Bytes)	Length of Hidden Text (Characters)	Size of Hidden Text (Bytes)	Length of Stego Text (Characters)	Size of Stego Text (Bytes)	Used Characters	Unused Characters	Embedding Time (ms)	Extracting Time (ms)
1	1261779	2523562	29	60	1261779	2523562	29	1261750	125	973
2	1261779	2523562	59	120	1261779	2523562	59	1261720	172	774
3	1261779	2523562	88	178	1261779	2523562	88	1261691	281	754
4	1261779	2523562	118	238	1261779	2523562	118	1261661	390	686
5	1261779	2523562	146	294	1261779	2523562	146	1261633	438	858
6	1261779	2523562	175	352	1261779	2523562	175	1261604	500	849
7	1261779	2523562	202	406	1261779	2523562	202	1261577	516	822
8	1261779	2523562	230	462	1261779	2523562	230	1261549	578	1112
9	1261779	2523562	260	522	1261779	2523562	260	1261519	672	874
10	1261779	2523562	291	584	1261779	2523562	291	1261488	734	789
11	1261779	2523562	321	644	1261779	2523562	321	1261458	812	815
12	1261779	2523562	352	706	1261779	2523562	352	1261427	901	1083
13	1261779	2523562	381	764	1261779	2523562	381	1261398	969	788
14	1261779	2523562	411	824	1261779	2523562	411	1261368	969	866
15	1261779	2523562	439	880	1261779	2523562	439	1261340	969	715
16	1261779	2523562	468	938	1261779	2523562	468	1261311	953	656
17	1261779	2523562	496	994	1261779	2523562	496	1261283	1078	925
18	1261779	2523562	525	1052	1261779	2523562	525	1261254	1187	770
19	1261779	2523562	552	1106	1261779	2523562	552	1261227	1234	1144
20	1261779	2523562	580	1162	1261779	2523562	580	1261199	1266	873

20. Extended-1 cover text 20

	Length of Cover Text (Characters)	Size of Cover Text (Bytes)	Length of Hidden Text (Characters)	Size of Hidden Text (Bytes)	Length of Stego Text (Characters)	Size of Stego Text (Bytes)	Used Characters	Unused Characters	Embedding Time (ms)	Extracting Time (ms)
1	1049565	2099134	29	60	1049565	2099134	29	1049536	125	940
2	1049565	2099134	59	120	1049565	2099134	59	1049506	188	791
3	1049565	2099134	88	178	1049565	2099134	88	1049477	234	662
4	1049565	2099134	118	238	1049565	2099134	118	1049447	360	552
5	1049565	2099134	146	294	1049565	2099134	146	1049419	453	743
6	1049565	2099134	175	352	1049565	2099134	175	1049390	500	691
7	1049565	2099134	202	406	1049565	2099134	202	1049363	469	747
8	1049565	2099134	230	462	1049565	2099134	230	1049335	484	677
9	1049565	2099134	260	522	1049565	2099134	260	1049305	547	683
10	1049565	2099134	291	584	1049565	2099134	291	1049274	563	983
11	1049565	2099134	321	644	1049565	2099134	321	1049244	609	1066
12	1049565	2099134	352	706	1049565	2099134	352	1049213	703	1052
13	1049565	2099134	381	764	1049565	2099134	381	1049184	766	632
14	1049565	2099134	411	824	1049565	2099134	411	1049154	860	670
15	1049565	2099134	439	880	1049565	2099134	439	1049126	813	687
16	1049565	2099134	468	938	1049565	2099134	468	1049097	844	1046
17	1049565	2099134	496	994	1049565	2099134	496	1049069	906	953
18	1049565	2099134	525	1052	1049565	2099134	525	1049040	1047	820
19	1049565	2099134	552	1106	1049565	2099134	552	1049013	1031	756
20	1049565	2099134	580	1162	1049565	2099134	580	1048985	1047	782

Appendix C

Experimental Result of Proposed Technique; Character-Mapping

1. Character-Mapping cover text 1

	Length of Cover Text (Characters)	Size of Cover Text (Bytes)	Length of Hidden Text (Characters)	Size of Hidden Text (Bytes)	Length of Stego Text (Characters)	Size of Stego Text (Bytes)	Used Characters	Unused Characters	Embedding Time (ms)	Extracting Time (ms)
1	1254442	2508888	29	60	1254442	2508888	29	1254413	141	869
2	1254442	2508888	59	120	1254442	2508888	59	1254383	234	832
3	1254442	2508888	88	178	1254442	2508888	88	1254354	297	782
4	1254442	2508888	118	238	1254442	2508888	118	1254324	422	754
5	1254442	2508888	146	294	1254442	2508888	146	1254296	438	733
6	1254442	2508888	175	352	1254442	2508888	175	1254267	422	700
7	1254442	2508888	202	406	1254442	2508888	202	1254240	734	602
8	1254442	2508888	230	462	1254442	2508888	230	1254212	766	670
9	1254442	2508888	260	522	1254442	2508888	260	1254182	562	680
10	1254442	2508888	291	584	1254442	2508888	291	1254151	687	601
11	1254442	2508888	321	644	1254442	2508888	321	1254121	735	764
12	1254442	2508888	352	706	1254442	2508888	352	1254090	1015	1108
13	1254442	2508888	381	764	1254442	2508888	381	1254061	953	860
14	1254442	2508888	411	824	1254442	2508888	411	1254031	859	691
15	1254442	2508888	439	880	1254442	2508888	439	1254003	954	707
16	1254442	2508888	468	938	1254442	2508888	468	1253974	1015	784
17	1254442	2508888	496	994	1254442	2508888	496	1253946	1172	837
18	1254442	2508888	525	1052	1254442	2508888	525	1253917	1047	745
19	1254442	2508888	552	1106	1254442	2508888	552	1253890	1218	758
20	1254442	2508888	580	1162	1254442	2508888	580	1253862	1217	747

2. Character-Mapping cover text 2

	Length of Cover Text (Characters)	Size of Cover Text (Bytes)	Length of Hidden Text (Characters)	Size of Hidden Text (Bytes)	Length of Stego Text (Characters)	Size of Stego Text (Bytes)	Used Characters	Unused Characters	Embedding Time (ms)	Extracting Time (ms)
1	1217494	2434992	29	60	1217494	2434992	29	1217465	125	866
2	1217494	2434992	59	120	1217494	2434992	59	1217435	219	628
3	1217494	2434992	88	178	1217494	2434992	88	1217406	266	547
4	1217494	2434992	118	238	1217494	2434992	118	1217376	407	660
5	1217494	2434992	146	294	1217494	2434992	146	1217348	453	720
6	1217494	2434992	175	352	1217494	2434992	175	1217319	531	523
7	1217494	2434992	202	406	1217494	2434992	202	1217292	465	720
8	1217494	2434992	230	462	1217494	2434992	230	1217264	563	890
9	1217494	2434992	260	522	1217494	2434992	260	1217234	547	752
10	1217494	2434992	291	584	1217494	2434992	291	1217203	719	721
11	1217494	2434992	321	644	1217494	2434992	321	1217173	781	830
12	1217494	2434992	352	706	1217494	2434992	352	1217142	750	773
13	1217494	2434992	381	764	1217494	2434992	381	1217113	797	1103
14	1217494	2434992	411	824	1217494	2434992	411	1217083	890	696
15	1217494	2434992	439	880	1217494	2434992	439	1217055	906	646
16	1217494	2434992	468	938	1217494	2434992	468	1217026	1000	747
17	1217494	2434992	496	994	1217494	2434992	496	1216998	968	686
18	1217494	2434992	525	1052	1217494	2434992	525	1216969	1125	769
19	1217494	2434992	552	1106	1217494	2434992	552	1216942	1156	785
20	1217494	2434992	580	1162	1217494	2434992	580	1216914	1156	815

3. Character-Mapping cover text 3

	Length of Cover Text (Characters)	Size of Cover Text (Bytes)	Length of Hidden Text (Characters)	Size of Hidden Text (Bytes)	Length of Stego Text (Characters)	Size of Stego Text (Bytes)	Used Characters	Unused Characters	Embedding Time (ms)	Extracting Time (ms)
1	1298720	2597444	29	60	1298720	2597444	29	1298691	141	937
2	1298720	2597444	59	120	1298720	2597444	59	1298661	234	815
3	1298720	2597444	88	178	1298720	2597444	88	1298632	359	688

4	1298720	2597444	118	238	1298720	2597444	118	1298602	797	717
5	1298720	2597444	146	294	1298720	2597444	146	1298574	766	664
6	1298720	2597444	175	352	1298720	2597444	175	1298545	594	750
7	1298720	2597444	202	406	1298720	2597444	202	1298518	656	714
8	1298720	2597444	230	462	1298720	2597444	230	1298490	719	692
9	1298720	2597444	260	522	1298720	2597444	260	1298460	735	854
10	1298720	2597444	291	584	1298720	2597444	291	1298429	812	1029
11	1298720	2597444	321	644	1298720	2597444	321	1298399	100	739
12	1298720	2597444	352	706	1298720	2597444	352	1298368	1125	1153
13	1298720	2597444	381	764	1298720	2597444	381	1298339	1438	707
14	1298720	2597444	411	824	1298720	2597444	411	1298309	1172	735
15	1298720	2597444	439	880	1298720	2597444	439	1298281	1471	729
16	1298720	2597444	468	938	1298720	2597444	468	1298252	1313	769
17	1298720	2597444	496	994	1298720	2597444	496	1298224	1414	827
18	1298720	2597444	525	1052	1298720	2597444	525	1298195	1485	793
19	1298720	2597444	552	1106	1298720	2597444	552	1298168	1636	773
20	1298720	2597444	580	1162	1298720	2597444	580	1298140	1655	654

4. Character-Mapping cover text 4

	Length of Cover Text (Characters)	Size of Cover Text (Bytes)	Length of Hidden Text (Characters)	Size of Hidden Text (Bytes)	Length of Stego Text (Characters)	Size of Stego Text (Bytes)	Used Characters	Unused Characters	Embedding Time (ms)	Extracting Time (ms)
1	1321622	2643248	29	60	1321622	2643248	29	1321593	122	825
2	1321622	2643248	59	120	1321622	2643248	59	1321563	203	842
3	1321622	2643248	88	178	1321622	2643248	88	1321534	359	827
4	1321622	2643248	118	238	1321622	2643248	118	1321504	485	720
5	1321622	2643248	146	294	1321622	2643248	146	1321476	486	741
6	1321622	2643248	175	352	1321622	2643248	175	1321445	817	867
7	1321622	2643248	202	406	1321622	2643248	202	1321420	901	783
8	1321622	2643248	230	462	1321622	2643248	230	1321392	890	777
9	1321622	2643248	260	522	1321622	2643248	260	1321362	1156	1161
10	1321622	2643248	291	584	1321622	2643248	291	1321331	906	621
11	1321622	2643248	321	644	1321622	2643248	321	1321301	969	954
12	1321622	2643248	352	706	1321622	2643248	352	1321270	953	785
13	1321622	2643248	381	764	1321622	2643248	381	1321241	1432	1031
14	1321622	2643248	411	824	1321622	2643248	411	1321211	1281	844
15	1321622	2643248	439	880	1321622	2643248	439	1321183	1266	711
16	1321622	2643248	468	938	1321622	2643248	468	1321134	1499	853
17	1321622	2643248	496	994	1321622	2643248	496	1321126	1431	900
18	1321622	2643248	525	1052	1321622	2643248	525	1321097	1926	1000
19	1321622	2643248	552	1106	1321622	2643248	552	1321070	1953	960
20	1321622	2643248	580	1162	1321622	2643248	580	1321042	2504	992

5. Character-Mapping cover text 5

	Length of Cover Text (Characters)	Size of Cover Text (Bytes)	Length of Hidden Text (Characters)	Size of Hidden Text (Bytes)	Length of Stego Text (Characters)	Size of Stego Text (Bytes)	Used Characters	Unused Characters	Embedding Time (ms)	Extracting Time (ms)
1	1388643	2777290	29	60	1388643	2777290	29	1388614	154	999
2	1388643	2777290	59	120	1388643	2777290	59	1388584	232	848
3	1388643	2777290	88	178	1388643	2777290	88	1388555	367	752
4	1388643	2777290	118	238	1388643	2777290	118	1388525	587	768
5	1388643	2777290	146	294	1388643	2777290	146	1388497	558	847
6	1388643	2777290	175	352	1388643	2777290	175	1388468	574	735
7	1388643	2777290	202	406	1388643	2777290	202	1388441	784	728
8	1388643	2777290	230	462	1388643	2777290	230	1388413	990	744
9	1388643	2777290	260	522	1388643	2777290	260	1388383	826	704
10	1388643	2777290	291	584	1388643	2777290	291	1388352	937	608
11	1388643	2777290	321	644	1388643	2777290	321	1388322	1317	688
12	1388643	2777290	352	706	1388643	2777290	352	1388291	1272	712
13	1388643	2777290	381	764	1388643	2777290	381	1388262	1013	720
14	1388643	2777290	411	824	1388643	2777290	411	1388232	1106	928
15	1388643	2777290	439	880	1388643	2777290	439	1388204	1182	648
16	1388643	2777290	468	938	1388643	2777290	468	1388175	1270	664
17	1388643	2777290	496	994	1388643	2777290	496	1388147	1444	728
18	1388643	2777290	525	1052	1388643	2777290	525	1388118	1452	1008
19	1388643	2777290	552	1106	1388643	2777290	552	1388091	1634	984
20	1388643	2777290	580	1162	1388643	2777290	580	1388063	1692	920

6. Character-Mapping cover text 6

	Length of Cover Text (Characters)	Size of Cover Text (Bytes)	Length of Hidden Text (Characters)	Size of Hidden Text (Bytes)	Length of Stego Text (Characters)	Size of Stego Text (Bytes)	Used Characters	Unused Characters	Embedding Time (ms)	Extracting Time (ms)
1	1254764	2509532	29	60	1254764	2509532	29	1254735	118	695
2	1254764	2509532	59	120	1254764	2509532	59	1254705	250	521
3	1254764	2509532	88	178	1254764	2509532	88	1254676	328	498
4	1254764	2509532	118	238	1254764	2509532	118	1254646	391	485
5	1254764	2509532	146	294	1254764	2509532	146	1254618	485	499
6	1254764	2509532	175	352	1254764	2509532	175	1254519	531	446
7	1254764	2509532	202	406	1254764	2509532	202	1254562	547	461
8	1254764	2509532	230	462	1254764	2509532	230	1254534	625	671
9	1254764	2509532	260	522	1254764	2509532	260	1254504	765	382
10	1254764	2509532	291	584	1254764	2509532	291	1254473	860	472
11	1254764	2509532	321	644	1254764	2509532	321	1254443	875	449
12	1254764	2509532	352	706	1254764	2509532	352	1254412	781	480
13	1254764	2509532	381	764	1254764	2509532	381	1254383	953	406
14	1254764	2509532	411	824	1254764	2509532	411	1254353	1015	460
15	1254764	2509532	439	880	1254764	2509532	439	1254325	1015	590
16	1254764	2509532	468	938	1254764	2509532	468	1254296	1031	387
17	1254764	2509532	496	994	1254764	2509532	496	1254268	1062	407
18	1254764	2509532	525	1052	1254764	2509532	525	1254239	1218	333
19	1254764	2509532	552	1106	1254764	2509532	552	1254212	1234	461
20	1254764	2509532	580	1162	1254764	2509532	580	1254184	1281	432

7. Character-Mapping cover text 7

	Length of Cover Text (Characters)	Size of Cover Text (Bytes)	Length of Hidden Text (Characters)	Size of Hidden Text (Bytes)	Length of Stego Text (Characters)	Size of Stego Text (Bytes)	Used Characters	Unused Characters	Embedding Time (ms)	Extracting Time (ms)
1	1256771	2513546	29	60	1256771	2513546	29	1256742	125	472
2	1256771	2513546	59	120	1256771	2513546	59	1256712	172	446
3	1256771	2513546	88	178	1256771	2513546	88	1256683	266	521
4	1256771	2513546	118	238	1256771	2513546	118	1256653	359	427
5	1256771	2513546	146	294	1256771	2513546	146	1256625	453	427
6	1256771	2513546	175	352	1256771	2513546	175	1256596	437	364
7	1256771	2513546	202	406	1256771	2513546	202	1256569	468	354
8	1256771	2513546	230	462	1256771	2513546	230	1256541	515	369
9	1256771	2513546	260	522	1256771	2513546	260	1256511	625	445
10	1256771	2513546	291	584	1256771	2513546	291	1256480	703	508
11	1256771	2513546	321	644	1256771	2513546	321	1256450	891	458
12	1256771	2513546	352	706	1256771	2513546	352	1256419	812	431
13	1256771	2513546	381	764	1256771	2513546	381	1256390	890	543
14	1256771	2513546	411	824	1256771	2513546	411	1256360	1016	548
15	1256771	2513546	439	880	1256771	2513546	439	1256332	937	446
16	1256771	2513546	468	938	1256771	2513546	468	1256303	1047	683
17	1256771	2513546	496	994	1256771	2513546	496	1256275	1093	508
18	1256771	2513546	525	1052	1256771	2513546	525	1256246	1156	551
19	1256771	2513546	552	1106	1256771	2513546	552	1256219	1281	499
20	1256771	2513546	580	1162	1256771	2513546	580	1256191	1297	582

8. Character-Mapping cover text 8

	Length of Cover Text (Characters)	Size of Cover Text (Bytes)	Length of Hidden Text (Characters)	Size of Hidden Text (Bytes)	Length of Stego Text (Characters)	Size of Stego Text (Bytes)	Used Characters	Unused Characters	Embedding Time (ms)	Extracting Time (ms)
1	1410116	2820236	29	60	1410116	2820236	29	1410087	141	568
2	1410116	2820236	59	120	1410116	2820236	59	1410057	235	486
3	1410116	2820236	88	178	1410116	2820236	88	1410028	360	536
4	1410116	2820236	118	238	1410116	2820236	118	1409998	481	449
5	1410116	2820236	146	294	1410116	2820236	146	1409970	638	583
6	1410116	2820236	175	352	1410116	2820236	175	1409941	729	470
7	1410116	2820236	202	406	1410116	2820236	202	1409914	797	640
8	1410116	2820236	230	462	1410116	2820236	230	1409886	852	472
9	1410116	2820236	260	522	1410116	2820236	260	1409856	897	743
10	1410116	2820236	291	584	1410116	2820236	291	1409825	926	436

11	1410116	2820236	321	644	1410116	2820236	321	1409795	970	465
12	1410116	2820236	352	706	1410116	2820236	352	1409764	1056	609
13	1410116	2820236	381	764	1410116	2820236	381	1409735	1141	593
14	1410116	2820236	411	824	1410116	2820236	411	1409705	1135	364
15	1410116	2820236	439	880	1410116	2820236	439	1409677	1228	456
16	1410116	2820236	468	938	1410116	2820236	468	1409648	1335	537
17	1410116	2820236	496	994	1410116	2820236	496	1409620	1423	619
18	1410116	2820236	525	1052	1410116	2820236	525	1409591	1521	581
19	1410116	2820236	552	1106	1410116	2820236	552	1409564	1548	520
20	1410116	2820236	580	1162	1410116	2820236	580	1409536	1645	502

9. Character-Mapping cover text 9

	Length of Cover Text (Characters)	Size of Cover Text (Bytes)	Length of Hidden Text (Characters)	Size of Hidden Text (Bytes)	Length of Stego Text (Characters)	Size of Stego Text (Bytes)	Used Characters	Unused Characters	Embedding Time (ms)	Extracting Time (ms)
1	1338902	2677808	29	60	1338902	2677808	29	1338873	157	592
2	1338902	2677808	59	120	1338902	2677808	59	1338843	280	392
3	1338902	2677808	88	178	1338902	2677808	88	1338814	413	656
4	1338902	2677808	118	238	1338902	2677808	118	1338784	468	504
5	1338902	2677808	146	294	1338902	2677808	146	1338754	580	560
6	1338902	2677808	175	352	1338902	2677808	175	1338727	733	480
7	1338902	2677808	202	406	1338902	2677808	202	1338700	879	920
8	1338902	2677808	230	462	1338902	2677808	230	1338672	788	631
9	1338902	2677808	260	522	1338902	2677808	260	1338642	884	480
10	1338902	2677808	291	584	1338902	2677808	291	1338611	874	664
11	1338902	2677808	321	644	1338902	2677808	321	1338581	936	568
12	1338902	2677808	352	706	1338902	2677808	352	1338550	939	682
13	1338902	2677808	381	764	1338902	2677808	381	1338521	1058	592
14	1338902	2677808	411	824	1338902	2677808	411	1338491	1164	488
15	1338902	2677808	439	880	1338902	2677808	439	1338463	1131	440
16	1338902	2677808	468	938	1338902	2677808	468	1338434	1121	504
17	1338902	2677808	496	994	1338902	2677808	496	1338406	1291	664
18	1338902	2677808	525	1052	1338902	2677808	525	1338377	1431	624
19	1338902	2677808	552	1106	1338902	2677808	552	1338350	1400	848
20	1338902	2677808	580	1162	1338902	2677808	580	1338322	1468	496

10. Character-Mapping cover text 10

	Length of Cover Text (Characters)	Size of Cover Text (Bytes)	Length of Hidden Text (Characters)	Size of Hidden Text (Bytes)	Length of Stego Text (Characters)	Size of Stego Text (Bytes)	Used Characters	Unused Characters	Embedding Time (ms)	Extracting Time (ms)
1	1371070	2742144	29	60	1371070	2742144	29	1371041	184	631
2	1371070	2742144	59	120	1371070	2742144	59	1371011	302	496
3	1371070	2742144	88	178	1371070	2742144	88	1370982	376	503
4	1371070	2742144	118	238	1371070	2742144	118	1370952	422	520
5	1371070	2742144	146	294	1371070	2742144	146	1370924	585	664
6	1371070	2742144	175	352	1371070	2742144	175	1370895	615	544
7	1371070	2742144	202	406	1371070	2742144	202	1370868	744	496
8	1371070	2742144	230	462	1371070	2742144	230	1370840	911	471
9	1371070	2742144	260	522	1371070	2742144	260	1370810	1138	768
10	1371070	2742144	291	584	1371070	2742144	291	1370779	887	840
11	1371070	2742144	321	644	1371070	2742144	321	1370749	893	480
12	1371070	2742144	352	706	1371070	2742144	352	1370718	988	654
13	1371070	2742144	381	764	1371070	2742144	381	1370689	1057	767
14	1371070	2742144	411	824	1371070	2742144	411	1370659	1243	885
15	1371070	2742144	439	880	1371070	2742144	439	1370631	1182	616
16	1371070	2742144	468	938	1371070	2742144	468	1370602	1258	501
17	1371070	2742144	496	994	1371070	2742144	496	1370574	1235	592
18	1371070	2742144	525	1052	1371070	2742144	525	1370545	1346	801
19	1371070	2742144	552	1106	1371070	2742144	552	1370518	1390	750
20	1371070	2742144	580	1162	1371070	2742144	580	1370490	1552	658

11. Character-Mapping cover text 11

	Length of Cover Text (Characters)	Size of Cover Text (Bytes)	Length of Hidden Text (Characters)	Size of Hidden Text (Bytes)	Length of Stego Text (Characters)	Size of Stego Text (Bytes)	Used Characters	Unused Characters	Embedding Time (ms)	Extracting Time (ms)
1	1304116	2608236	29	60	1304116	2608236	29	1304087	143	450
2	1304116	2608236	59	120	1304116	2608236	59	1304057	231	481
3	1304116	2608236	88	178	1304116	2608236	88	1304028	336	499
4	1304116	2608236	118	238	1304116	2608236	118	1303998	463	483
5	1304116	2608236	146	294	1304116	2608236	146	1303970	594	400
6	1304116	2608236	175	352	1304116	2608236	175	1303941	686	484
7	1304116	2608236	202	406	1304116	2608236	202	1303914	722	525
8	1304116	2608236	230	462	1304116	2608236	230	1303886	752	419
9	1304116	2608236	260	522	1304116	2608236	260	1303856	735	516
10	1304116	2608236	291	584	1304116	2608236	291	1303825	804	442
11	1304116	2608236	321	644	1304116	2608236	321	1303795	848	780
12	1304116	2608236	352	706	1304116	2608236	352	1303764	977	488
13	1304116	2608236	381	764	1304116	2608236	381	1303735	1075	475
14	1304116	2608236	411	824	1304116	2608236	411	1303705	1065	771
15	1304116	2608236	439	880	1304116	2608236	439	1303677	1159	781
16	1304116	2608236	468	938	1304116	2608236	468	1303648	1152	440
17	1304116	2608236	496	994	1304116	2608236	496	1303620	1248	452
18	1304116	2608236	525	1052	1304116	2608236	525	1303591	1353	470
19	1304116	2608236	552	1106	1304116	2608236	552	1303564	1378	850
20	1304116	2608236	580	1162	1304116	2608236	580	1303536	1401	584

12. Character-Mapping cover text 12

	Length of Cover Text (Characters)	Size of Cover Text (Bytes)	Length of Hidden Text (Characters)	Size of Hidden Text (Bytes)	Length of Stego Text (Characters)	Size of Stego Text (Bytes)	Used Characters	Unused Characters	Embedding Time (ms)	Extracting Time (ms)
1	1323583	2647170	29	60	1323583	2647170	29	1323554	155	624
2	1323583	2647170	59	120	1323583	2647170	59	1323524	199	719
3	1323583	2647170	88	178	1323583	2647170	88	1323495	363	490
4	1323583	2647170	118	238	1323583	2647170	118	1323465	418	547
5	1323583	2647170	146	294	1323583	2647170	146	1323437	542	604
6	1323583	2647170	175	352	1323583	2647170	175	1323408	602	593
7	1323583	2647170	202	406	1323583	2647170	202	1323381	597	512
8	1323583	2647170	230	462	1323583	2647170	230	1323353	594	896
9	1323583	2647170	260	522	1323583	2647170	260	1323323	700	636
10	1323583	2647170	291	584	1323583	2647170	291	1323292	818	491
11	1323583	2647170	321	644	1323583	2647170	321	1323262	840	468
12	1323583	2647170	352	706	1323583	2647170	352	1323231	945	711
13	1323583	2647170	381	764	1323583	2647170	381	1323202	1053	620
14	1323583	2647170	411	824	1323583	2647170	411	1323172	1088	587
15	1323583	2647170	439	880	1323583	2647170	439	1323144	1207	687
16	1323583	2647170	468	938	1323583	2647170	468	1323115	1218	578
17	1323583	2647170	496	994	1323583	2647170	496	1323087	1272	688
18	1323583	2647170	525	1052	1323583	2647170	525	1323058	1334	574
19	1323583	2647170	552	1106	1323583	2647170	552	1323031	1441	655
20	1323583	2647170	580	1162	1323583	2647170	580	1323003	1477	591

13. Character-Mapping cover text 13

	Length of Cover Text (Characters)	Size of Cover Text (Bytes)	Length of Hidden Text (Characters)	Size of Hidden Text (Bytes)	Length of Stego Text (Characters)	Size of Stego Text (Bytes)	Used Characters	Unused Characters	Embedding Time (ms)	Extracting Time (ms)
1	1129686	2259376	29	60	1129686	2259376	29	1129657	131	493
2	1129686	2259376	59	120	1129686	2259376	59	1129627	176	387
3	1129686	2259376	88	178	1129686	2259376	88	1129598	294	391
4	1129686	2259376	118	238	1129686	2259376	118	1129568	338	465
5	1129686	2259376	146	294	1129686	2259376	146	1129540	406	540
6	1129686	2259376	175	352	1129686	2259376	175	1129511	482	298
7	1129686	2259376	202	406	1129686	2259376	202	1129484	538	554
8	1129686	2259376	230	462	1129686	2259376	230	1129456	552	980
9	1129686	2259376	260	522	1129686	2259376	260	1129426	619	385

10	1129686	2259376	291	584	1129686	2259376	291	1129395	671	707
11	1129686	2259376	321	644	1129686	2259376	321	1129365	783	511
12	1129686	2259376	352	706	1129686	2259376	352	1129334	832	367
13	1129686	2259376	381	764	1129686	2259376	381	1129305	830	476
14	1129686	2259376	411	824	1129686	2259376	411	1129275	934	575
15	1129686	2259376	439	880	1129686	2259376	439	1129247	1034	676
16	1129686	2259376	468	938	1129686	2259376	468	1129218	1032	369
17	1129686	2259376	496	994	1129686	2259376	496	1129190	1128	589
18	1129686	2259376	525	1052	1129686	2259376	525	1129161	1210	474
19	1129686	2259376	552	1106	1129686	2259376	552	1129134	1259	420
20	1129686	2259376	580	1162	1129686	2259376	580	1129106	1245	396

14. Character-Mapping cover text 14

	Length of Cover Text (Characters)	Size of Cover Text (Bytes)	Length of Hidden Text (Characters)	Size of Hidden Text (Bytes)	Length of Stego Text (Characters)	Size of Stego Text (Bytes)	Used Characters	Unused Characters	Embedding Time (ms)	Extracting Time (ms)
1	1128670	2257344	29	60	1128670	2257344	29	1128641	137	524
2	1128670	2257344	59	120	1128670	2257344	59	1128611	264	448
3	1128670	2257344	88	178	1128670	2257344	88	1128582	307	428
4	1128670	2257344	118	238	1128670	2257344	118	1128552	410	333
5	1128670	2257344	146	294	1128670	2257344	146	1128524	498	377
6	1128670	2257344	175	352	1128670	2257344	175	1128495	561	545
7	1128670	2257344	202	406	1128670	2257344	202	1128468	539	352
8	1128670	2257344	230	462	1128670	2257344	230	1128440	615	390
9	1128670	2257344	260	522	1128670	2257344	260	1128410	663	357
10	1128670	2257344	291	584	1128670	2257344	291	1128379	686	354
11	1128670	2257344	321	644	1128670	2257344	321	1128349	980	373
12	1128670	2257344	352	706	1128670	2257344	352	1128318	1095	906
13	1128670	2257344	381	764	1128670	2257344	381	1128289	1039	550
14	1128670	2257344	411	824	1128670	2257344	411	1128259	1157	639
15	1128670	2257344	439	880	1128670	2257344	439	1128231	1100	492
16	1128670	2257344	468	938	1128670	2257344	468	1128202	1075	375
17	1128670	2257344	496	994	1128670	2257344	496	1128174	1208	438
18	1128670	2257344	525	1052	1128670	2257344	525	1128145	1192	396
19	1128670	2257344	552	1106	1128670	2257344	552	1128118	1181	434
20	1128670	2257344	580	1162	1128670	2257344	580	1128090	1214	631

15. Character-Mapping cover text 15

	Length of Cover Text (Characters)	Size of Cover Text (Bytes)	Length of Hidden Text (Characters)	Size of Hidden Text (Bytes)	Length of Stego Text (Characters)	Size of Stego Text (Bytes)	Used Characters	Unused Characters	Embedding Time (ms)	Extracting Time (ms)
1	1258664	2517332	29	60	1258664	2517332	29	1258635	138	582
2	1258664	2517332	59	120	1258664	2517332	59	1258605	197	332
3	1258664	2517332	88	178	1258664	2517332	88	1258576	377	392
4	1258664	2517332	118	238	1258664	2517332	118	1258546	396	385
5	1258664	2517332	146	294	1258664	2517332	146	1258518	448	434
6	1258664	2517332	175	352	1258664	2517332	175	1258489	562	426
7	1258664	2517332	202	406	1258664	2517332	202	1258462	501	442
8	1258664	2517332	230	462	1258664	2517332	230	1258434	613	417
9	1258664	2517332	260	522	1258664	2517332	260	1258404	635	316
10	1258664	2517332	291	584	1258664	2517332	291	1258373	684	930
11	1258664	2517332	321	644	1258664	2517332	321	1258343	781	432
12	1258664	2517332	352	706	1258664	2517332	352	1258312	856	471
13	1258664	2517332	381	764	1258664	2517332	381	1258283	976	534
14	1258664	2517332	411	824	1258664	2517332	411	1258253	989	637
15	1258664	2517332	439	880	1258664	2517332	439	1258225	1087	645
16	1258664	2517332	468	938	1258664	2517332	468	1258196	1230	517
17	1258664	2517332	496	994	1258664	2517332	496	1258168	1411	562
18	1258664	2517332	525	1052	1258664	2517332	525	1258139	1357	595
19	1258664	2517332	552	1106	1258664	2517332	552	1258112	1359	528
20	1258664	2517332	580	1162	1258664	2517332	580	1258084	1520	684

16. Character-Mapping cover text 16

	Length of Cover Text (Characters)	Size of Cover Text (Bytes)	Length of Hidden Text (Characters)	Size of Hidden Text (Bytes)	Length of Stego Text (Characters)	Size of Stego Text (Bytes)	Used Characters	Unused Characters	Embedding Time (ms)	Extracting Time (ms)
1	1316416	2632836	29	60	1316416	2632836	29	1316387	144	527
2	1316416	2632836	59	120	1316416	2632836	59	1316357	293	391
3	1316416	2632836	88	178	1316416	2632836	88	1316328	330	474
4	1316416	2632836	118	238	1316416	2632836	118	1316298	443	500
5	1316416	2632836	146	294	1316416	2632836	146	1316270	522	481
6	1316416	2632836	175	352	1316416	2632836	175	1316241	675	439
7	1316416	2632836	202	406	1316416	2632836	202	1316214	894	391
8	1316416	2632836	230	462	1316416	2632836	230	1316186	899	873
9	1316416	2632836	260	522	1316416	2632836	260	1316156	956	440
10	1316416	2632836	291	584	1316416	2632836	291	1316125	838	630
11	1316416	2632836	321	644	1316416	2632836	321	1316095	926	429
12	1316416	2632836	352	706	1316416	2632836	352	1316064	945	503
13	1316416	2632836	381	764	1316416	2632836	381	1316035	1001	502
14	1316416	2632836	411	824	1316416	2632836	411	1316005	1062	491
15	1316416	2632836	439	880	1316416	2632836	439	1315977	1190	472
16	1316416	2632836	468	938	1316416	2632836	468	1315948	1183	436
17	1316416	2632836	496	994	1316416	2632836	496	1315920	1252	501
18	1316416	2632836	525	1052	1316416	2632836	525	1315891	1376	453
19	1316416	2632836	552	1106	1316416	2632836	552	1315864	1391	894
20	1316416	2632836	580	1162	1316416	2632836	580	1315836	1555	458

17. Character-Mapping cover text 17

	Length of Cover Text (Characters)	Size of Cover Text (Bytes)	Length of Hidden Text (Characters)	Size of Hidden Text (Bytes)	Length of Stego Text (Characters)	Size of Stego Text (Bytes)	Used Characters	Unused Characters	Embedding Time (ms)	Extracting Time (ms)
1	1546910	3093824	29	60	1546910	3093824	29	1546881	172	616
2	1546910	3093824	59	120	1546910	3093824	59	1546851	375	538
3	1546910	3093824	88	178	1546910	3093824	88	1546822	359	426
4	1546910	3093824	118	238	1546910	3093824	118	1546792	499	477
5	1546910	3093824	146	294	1546910	3093824	146	1546764	625	495
6	1546910	3093824	175	352	1546910	3093824	175	1546735	531	615
7	1546910	3093824	202	406	1546910	3093824	202	1546708	578	532
8	1546910	3093824	230	462	1546910	3093824	230	1546680	656	667
9	1546910	3093824	260	522	1546910	3093824	260	1546650	812	663
10	1546910	3093824	291	584	1546910	3093824	291	1546619	828	506
11	1546910	3093824	321	644	1546910	3093824	321	1546589	922	441
12	1546910	3093824	352	706	1546910	3093824	352	1546558	1062	556
13	1546910	3093824	381	764	1546910	3093824	381	1546529	1156	670
14	1546910	3093824	411	824	1546910	3093824	411	1546499	1375	612
15	1546910	3093824	439	880	1546910	3093824	439	1546471	1109	534
16	1546910	3093824	468	938	1546910	3093824	468	1546442	1313	629
17	1546910	3093824	496	994	1546910	3093824	496	1546414	1375	628
18	1546910	3093824	525	1052	1546910	3093824	525	1546385	1375	609
19	1546910	3093824	552	1106	1546910	3093824	552	1546358	1453	578
20	1546910	3093824	580	1162	1546910	3093824	580	1546330	1515	509

18. Character-Mapping cover text 18

	Length of Cover Text (Characters)	Size of Cover Text (Bytes)	Length of Hidden Text (Characters)	Size of Hidden Text (Bytes)	Length of Stego Text (Characters)	Size of Stego Text (Bytes)	Used Characters	Unused Characters	Embedding Time (ms)	Extracting Time (ms)
1	1258818	2517640	29	60	1258818	2517640	29	1258789	125	547
2	1258818	2517640	59	120	1258818	2517640	59	1258759	234	373
3	1258818	2517640	88	178	1258818	2517640	88	1258730	281	337
4	1258818	2517640	118	238	1258818	2517640	118	1258700	344	431
5	1258818	2517640	146	294	1258818	2517640	146	1258672	516	417
6	1258818	2517640	175	352	1258818	2517640	175	1258643	485	379
7	1258818	2517640	202	406	1258818	2517640	202	1258616	453	397
8	1258818	2517640	230	462	1258818	2517640	230	1258588	625	357
9	1258818	2517640	260	522	1258818	2517640	260	1258558	657	438
10	1258818	2517640	291	584	1258818	2517640	291	1258527	672	412
11	1258818	2517640	321	644	1258818	2517640	321	1258497	797	675

12	1258818	2517640	352	706	1258818	2517640	352	1258466	860	493
13	1258818	2517640	381	764	1258818	2517640	381	1258437	890	396
14	1258818	2517640	411	824	1258818	2517640	411	1258407	906	471
15	1258818	2517640	439	880	1258818	2517640	439	1258379	937	504
16	1258818	2517640	468	938	1258818	2517640	468	1258350	1078	432
17	1258818	2517640	496	994	1258818	2517640	496	1258322	1015	503
18	1258818	2517640	525	1052	1258818	2517640	525	1258293	1172	466
19	1258818	2517640	552	1106	1258818	2517640	552	1258266	1281	551
20	1258818	2517640	580	1162	1258818	2517640	580	1258238	1250	420

19. Character-Mapping cover text 19

	Length of Cover Text (Characters)	Size of Cover Text (Bytes)	Length of Hidden Text (Characters)	Size of Hidden Text (Bytes)	Length of Stego Text (Characters)	Size of Stego Text (Bytes)	Used Characters	Unused Characters	Embedding Time (ms)	Extracting Time (ms)
1	1261779	2523562	29	60	1261779	2523562	29	1261750	141	616
2	1261779	2523562	59	120	1261779	2523562	59	1261720	219	447
3	1261779	2523562	88	178	1261779	2523562	88	1261691	297	421
4	1261779	2523562	118	238	1261779	2523562	118	1261661	406	381
5	1261779	2523562	146	294	1261779	2523562	146	1261633	437	443
6	1261779	2523562	175	352	1261779	2523562	175	1261604	500	295
7	1261779	2523562	202	406	1261779	2523562	202	1261577	499	392
8	1261779	2523562	230	462	1261779	2523562	230	1261549	563	772
9	1261779	2523562	260	522	1261779	2523562	260	1261519	672	551
10	1261779	2523562	291	584	1261779	2523562	291	1261488	719	489
11	1261779	2523562	321	644	1261779	2523562	321	1261458	735	416
12	1261779	2523562	352	706	1261779	2523562	352	1261427	843	339
13	1261779	2523562	381	764	1261779	2523562	381	1261398	875	387
14	1261779	2523562	411	824	1261779	2523562	411	1261368	891	450
15	1261779	2523562	439	880	1261779	2523562	439	1261340	953	398
16	1261779	2523562	468	938	1261779	2523562	468	1261311	1000	351
17	1261779	2523562	496	994	1261779	2523562	496	1261283	1062	492
18	1261779	2523562	525	1052	1261779	2523562	525	1261254	1094	368
19	1261779	2523562	552	1106	1261779	2523562	552	1261227	1156	434
20	1261779	2523562	580	1162	1261779	2523562	580	1261199	1282	439

20. Character-Mapping cover text 20

	Length of Cover Text (Characters)	Size of Cover Text (Bytes)	Length of Hidden Text (Characters)	Size of Hidden Text (Bytes)	Length of Stego Text (Characters)	Size of Stego Text (Bytes)	Used Characters	Unused Characters	Embedding Time (ms)	Extracting Time (ms)
1	1049565	2099134	29	60	1049565	2099134	29	1049536	125	503
2	1049565	2099134	59	120	1049565	2099134	59	1049506	188	355
3	1049565	2099134	88	178	1049565	2099134	88	1049477	265	370
4	1049565	2099134	118	238	1049565	2099134	118	1049447	250	335
5	1049565	2099134	146	294	1049565	2099134	146	1049419	406	373
6	1049565	2099134	175	352	1049565	2099134	175	1049390	453	449
7	1049565	2099134	202	406	1049565	2099134	202	1049363	500	246
8	1049565	2099134	230	462	1049565	2099134	230	1049335	485	345
9	1049565	2099134	260	522	1049565	2099134	260	1049305	547	380
10	1049565	2099134	291	584	1049565	2099134	291	1049274	610	334
11	1049565	2099134	321	644	1049565	2099134	321	1049244	688	508
12	1049565	2099134	352	706	1049565	2099134	352	1049213	734	374
13	1049565	2099134	381	764	1049565	2099134	381	1049184	797	353
14	1049565	2099134	411	824	1049565	2099134	411	1049154	843	334
15	1049565	2099134	439	880	1049565	2099134	439	1049126	875	338
16	1049565	2099134	468	938	1049565	2099134	468	1049097	953	310
17	1049565	2099134	496	994	1049565	2099134	496	1049069	891	316
18	1049565	2099134	525	1052	1049565	2099134	525	1049040	953	414
19	1049565	2099134	552	1106	1049565	2099134	552	1049013	1125	362
20	1049565	2099134	580	1162	1049565	2099134	580	1048985	1047	405