INTERNATIONAL STANDARD

ISO 12642-2

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Graphic technology — Input data for characterization of 4-colour process printing —

Part 2: **Expanded data set**

Technologie graphique — Données d'entrée pour caractérisation d'impression en quadrichromie —

Partie 2: Ensemble de données élargies

Reference number
ISO 12642-2:2006(E)

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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

ISO 12642-2 was prepared by Technical Committee ISO/TC 130, *Graphic technology*.

ISO 12642 consists of the following parts, under the general title *Graphic technology — Input data for characterization of 4-colour process printing*:

— *Part 1: Initial data set*

— *Part 2: Expanded data set*

Introduction

The existing characterization data set defined in ISO 12642-1 has proven very effective for use in characterizing various printing processes. Two concerns have been raised with respect to the ISO 12642-1 data set. First, many of those developing characterization data for colour management systems feel that additional data points are needed to provide better sampling of the data space. The second concern comes from the packaging industry which would like to see both more data points in general but also more data at the highlight end of the scale and in particular more 4-colour data with low levels of black.

Several drafts of a data set optimized for package printing (referred to as IT8.7/4) have been prepared by ANSI Committee for Graphic Arts Technologies Standards (CGATS). In addition, the European Colour Initiative (ECI) took an early draft and combined parts of it with the ISO 12642-1 data set and developed a data set known as ECI 2002 that has 1 485 data set elements. ECI 2002 has since been approved as DIN 16614:2004. The data set contained in this part of ISO 12642 adds a series of 4-colour overprints at the 10 % black level to the data set elements in the current ECI 2002 data set. It is believed that this combined data set can fill the general colour characterization needs of all segments of the industry.

During development of this part of ISO 12642, concerns were raised by the Japanese delegates concerning adequate representation of flesh tones. While additional flesh tones were not included in the standard data set, a 112-element flesh tone data set has been included in Annex B.

It is important to note that there will always be special applications where additional or special data will be needed because of the peculiarities of a process or critical colour needs in certain parts of the tone scale or colour space.

There is no required layout or patch size defined for the data set defined in this part of ISO 12642. Users are free to randomize the layout and/or “fit” it to the space available. However, the members of TC 130/WG 2 strongly believe that default layouts need to be defined so that electronic versions of the target can be made readily available. This will facilitate the use of this new data set by both users and colour management vendors. Accordingly, two default layouts are described in Annex A, i.e. one optimized for visual inspection, and the other randomized with the goal of uniform ink loading in each colour across the target area to minimize interaction between patch areas.

In addition, the reference files that are included in this part of ISO 12642 clearly identify the elements that represent the data set defined as ISO 12642-1:1996 (often referred to as IT8.7/3) and the data set defined in ECI 2002. These can both be easily extracted from and/or related to the larger data set where appropriate.

The International Organization for Standardization (ISO) draws attention to the fact that it is claimed that compliance with this document may involve the use of a patent (Japanese Patent No. 2554366) held by Konica Minolta.

ISO takes no position concerning the evidence, validity and scope of this patent right.

The holder of this patent right has assured ISO that he is willing to negotiate licences under reasonable and non-discriminatory terms and conditions with applicants throughout the world. In this respect, the statement of the holder of this patent right is registered with ISO. Information may be obtained from:

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Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights other than those identified above. ISO shall not be held responsible for identifying any or all such patent rights.

Graphic technology — Input data for characterization of 4-colour process printing —

Part 2: Expanded data set

1 Scope

This part of ISO 12642 defines a data set of ink value combinations that are intended to be used to characterize 4-colour process printing. This data set is not optimized for any printing process or application area but is robust enough for all general applications. The needs of publication, commercial, and package printing with offset, gravure, flexography, and other printing processes have been considered. While it is primarily aimed at process colour printing with CMYK inks, it can also be used with any combination of three chromatic coloured inks and a dark ink. It is an alternate to the ISO 12642-1 data set where more robust data is required.

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 12642-1:1996, *Graphic technology — Input data for characterization of 4-colour process printing — Part 1: Initial data set*

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

3.1
data set
total collection of independently identified ink value sets that are defined by this part of ISO 12642

NOTE The terms patch and target are deliberately avoided because they imply a physical object or layout. This part of ISO 12642 only defines the data values which the user is free to arrange in any target layout that meets their needs using patches of any size compatible with their measuring equipment.

3.2
ink values
digital value that represents the amount of a colourant required in a rendering process

NOTE For the half-tone printing process this is equivalent to the tone value/dot area of the half-tone film expressed as a percentage.

3.3
ink value set
set of four ink values representing the amount of the four colours to be used in a process colour area

4 Technical requirements

4.1 Data set characteristics

In order to meet the colour characterization needs of both the printing industry in general and the package printing industry, this data set needs to contain ink value sets that will provide sufficient detail in the highlight and shadow areas when printed using gravure, offset, flexographic and metal-decorating printing processes. In addition, this data set should be suitable for use with both traditional process colours as well as with three chromatic colours and a dark colour.

During the various development steps that led to the target defined in this standard, several groups of ink value sets (e.g. tone scales, grey balance, etc.) were identified. Those that are contained within the data set of this part of ISO 12642 are summarized in Table 1.

During evaluation of the requirements for this data set, a number of additional elements were considered. One group of these elements involved a regular array of flesh tone data. While these flesh tone data were not selected for inclusion in the defined data set, they were felt to be important enough to be documented as Annex B.

4.2 Data set definition

The groups of ink value sets of Table 1 have many individual sets of ink values that appear multiple times. Eliminating all duplicated sets would result in a composite data set of 1 588 ink value combinations. However, for any layouts that attempt to provide ease of visual inspection it is important to have symmetry within tone scales and within systematic 3-colour overprint arrays. This requires the presence of 29 duplicate ink value sets. These are the C, M, and Y single-colour data sets with tone values of 10 %, 20 %, 30 %, 40 %, 70 %, 85 %, and 100 % and the black single-colour data sets with tone values of 10 %, 20 %, 40 %, 60 %, 80 % and 100 %. In addition, there are two additional data set combinations assigned to paper to allow some flexibility in that area, particularly when the printing substrate is not traditional paper. This results in a total of 1 617 combinations.

Table 1 — Required groups of ink value sets

Group	Description
1	All combinations of 0 %, 10 %, 20 %, 30 %, 40 %, 55 %, 70 %, 85 %, 100 % in C, M and Y
2	All combinations of 0 %, 10 %, 20 %, 40 %, 70 % in C, M and Y with 10 % black All single-colour and 2-colour overprints at 100 % in C, M and Y with 10 % black
3	All combinations of 0 %, 10 %, 20 %, 40 %, 70 %, 100 % in C, M and Y with 20 % black
4	All combinations of 0 %, 20 %, 40 %, 70 %, 100 % in C, M and Y with 40 % black
5	All combinations of 0 %, 20 %, 40 %, 70 %, 100 % in C, M and Y with 60 % black
6	All 2-colour overprints at 40 % in C, M and Y with 70 % black All single colour and 2-colour overprints at 100 % in C, M and Y with 70 % black
7	All combinations of 0 %, 40 %, 70 %, 100 % in C, M and Y with 80 % black
8	All combinations of 0 %, 40 %, 100 % in C, M and Y with 100 % black
9	Near neutral combinations of C, M, Y as follows: 5 %, 3 %, 3 % with a black level of 0 % 10 %, 6 %, 6 % with black levels of 0 %, 10 %, 20 %, 40 %, 60 %, 80 %, 100 % 20 %, 12 %, 12 % with black levels of 0 %, 10 %, 20 %, 40 %, 60 %, 80 %, 100 % 40 %, 27 %, 27 % with black levels of 0 %, 10 %, 20 %, 40 %, 60 %, 80 %, 100 % 50 %, 40 %, 40 % with a black level of 0 % 60 %, 45 %, 45 % with black levels of 0 %, 20 %, 40 %, 60 %, 80 %, 100 % 80 %, 65 %, 65 % with black levels of 0 %, 40 %, 60 %, 80 %, 100 % 100 %, 85 %, 85 % with black levels of 0 %, 60 %, 80 %, 100 %
10	All combinations of 0 %, and 3 % in C, M, Y and K
11	All combinations of 0 %, and 7 % in C, M, Y and K
12	All combinations of 0 %, 3 %, and 40 % in C, M, Y and K
13	Single-colour scales in C, M, Y, and K with values of 100 %, 98 %, 95 %, 90 %, 85 %, 80 %, 75 %, 70 %, 60 %, 50 %, 40 %, 30 %, 25 %, 20 %, 15 %, 10 %, 7 %, 5 %, 3 %, 2 %, 0 %

Table 2, and the data file 12642-2_summary.csv accompanying this part of ISO 12642, lists the ID numbers and their associated CMYK ink values that shall constitute this characterization data set. Within this listing ink value data sets numbers 1 to 1485 are taken directly from the ECI 2002 specification [1].

NOTE 1 For convenience, separate ID numbers were assigned to the duplicated ink value sets noted above.

Users are cautioned that, while the data in Table 2 may be included in application software and reproduced as part of reports generated by such applications, reproduction of these data separate from accompanying measurement or layout data is a violation of ISO copyright.

NOTE 2 The 1 617 ink value data sets include all ink value combinations of the ECI data set (see Introduction) as well as all ink value combinations included in the original ISO 12642-1 data set, but not the duplicate ink value sets of the ISO 12642-1 data set.

NOTE 3 DIN 16614:2004 (ECI 2002) does not contain all of the ink value sets of Group 2 and it does not contain the near neutral combinations of 50 %, 40 %, 40 % with black.

Table 3, and the data file 12642-1_vs_12642-2.csv, tabulates the relationship between the ink value sets used in ISO 12642-1 and those defined in this part of ISO 12642. Patch IDs 1 to 1485 of this data set have the same ink value combinations as the comparable patch IDs of the ECI 2002 (DIN 16614:2004) data set.

4.3 Layouts for printing

The 1 617 ink value sets may be printed in any arrangement desired. For any specific arrangement, a table defining the relationship between row-column position and ID number shall be provided.

Although there is no requirement that any particular arrangement of these data be used for printing characterization targets, it was felt that default layouts were desirable to facilitate use of the target in many applications. Accordingly, two default layouts are defined in Annex A. One is for “visual” use where the patches are arranged in logical groups. In a second layout, the patches are randomized to minimize the influence of the target arrangement itself on the final results. Figures A.1 and A.2 illustrate the appearance of the default visual and random layouts.

NOTE The data file 12642-2_default.csv provides the relationship between row-column position and ID number for the two default layouts included in Annex A.

4.4 Data set identification

It is recommended that where data derived from this target is exchanged, it be identified in the following way:

— data representing the full 1 617 data values of ISO 12642-2: ISO 12642-2;

— data representing the first 1 485 data values of ISO 12642-2: ECI 2002;

— data representing the ISO 12642-1 data created from ISO 12642-2: ISO 12642-1;

— data representing the flesh tone data of Annex B: ISO 12642-2:2006, Annex B.

Table 2 — Ink value combinations versus identification number (ID No.)

ID No.	% C	% M	% Y	% K
1	0	0	0	0
2	0	10	0	0
3	0	20	0	0
4	0	30	0	0
5	0	40	0	0
6	0	55	0	0
7	0	70	0	0
8	0	85	0	0
9	0	100	0	0
10	10	0	0	0
11	10	10	0	0
12	10	20	0	0
13	10	30	0	0
14	10	40	0	0
15	10	55	0	0
16	10	70	0	0
17	10	85	0	0
18	10	100	0	0
19	20	0	0	0
20	20	10	0	0
21	20	20	0	0
22	20	30	0	0
23	20	40	0	0
24	20	55	0	0
25	20	70	0	0
26	20	85	0	0
27	20	100	0	0
28	30	0	0	0
29	30	10	0	0
30	30	20	0	0
31	30	30	0	0
32	30	40	0	0
33	30	55	0	0
34	30	70	0	0
35	30	85	0	0
36	30	100	0	0
37	40	0	0	0
38	40	10	0	0
39	40	20	0	0
40	40	30	0	0
41	40	40	0	0
42	40	55	0	0
43	40	70	0	0
44	40	85	0	0
45	40	100	0	0
46	55	0	0	0
47	55	10	0	0
48	55	20	0	0
49	55	30	0	0
50	55	40	0	0
51	55	55	0	0
52	55	70	0	0
53	55	85	0	0
54	55	100	0	0
55	70	0	0	0
56	70	10	0	0
57	70	20	0	0
58	70	30	0	0
59	70	40	0	0
60	70	55	0	0
61	70	70	0	0
62	70	85	0	0
63	70	100	0	0
64	85	0	0	0
65	85	10	0	0
66	85	20	0	0
67	85	30	0	0
68	85	40	0	0
69	85	55	0	0
70	85	70	0	0
71	85	85	0	0
72	85	100	0	0
73	100	0	0	0
74	100	10	0	0
75	100	20	0	0
76	100	30	0	0
77	100	40	0	0
78	100	55	0	0
79	100	70	0	0
80	100	85	0	0
81	100	100	0	0
82	0	0	10	0
83	0	10	10	0
84	0	20	10	0
85	0	30	10	0
86	0	40	10	0
87	0	55	10	0
88	0	70	10	0
89	0	85	10	0
90	0	100	10	0
91	10	0	10	0
92	10	10	10	0
93	10	20	10	0
94	10	30	10	0
95	10	40	10	0
96	10	55	10	0
97	10	70	10	0
98	10	85	10	0
99	10	100	10	0
100	20	0	10	0
101	20	10	10	0
102	20	20	10	0
103	20	30	10	0
104	20	40	10	0
105	20	55	10	0
106	20	70	10	0
107	20	85	10	0
108	20	100	10	0
109	30	0	10	0
110	30	10	10	0
111	30	20	10	0
112	30	30	10	0
113	30	40	10	0
114	30	55	10	0
115	30	70	10	0
116	30	85	10	0
117	30	100	10	0
118	40	0	10	0
119	40	10	10	0
120	40	20	10	0
121	40	30	10	0
122	40	40	10	0
123	40	55	10	0
124	40	70	10	0
125	40	85	10	0
126	40	100	10	0
127	55	0	10	0
128	55	10	10	0
129	55	20	10	0
130	55	30	10	0
131	55	40	10	0
132	55	55	10	0

Table 2 (*continued*)

ID No.	% C	% M	% Y	% K
133	55	70	10	0
134	55	85	10	0
135	55	100	10	0
136	70	0	10	0
137	70	10	10	0
138	70	20	10	0
139	70	30	10	0
140	70	40	10	0
141	70	55	10	0
142	70	70	10	0
143	70	85	10	0
144	70	100	10	0
145	85	0	10	0
146	85	10	10	0
147	85	20	10	0
148	85	30	10	0
149	85	40	10	0
150	85	55	10	0
151	85	70	10	0
152	85	85	10	0
153	85	100	10	0
154	100	0	10	0
155	100	10	10	0
156	100	20	10	0
157	100	30	10	0
158	100	40	10	0
159	100	55	10	0
160	100	70	10	0
161	100	85	10	0
162	100	100	10	0
163	0	0	20	0
164	0	10	20	0
165	0	20	20	0
166	0	30	20	0
167	0	40	20	0
168	0	55	20	0
169	0	70	20	0
170	0	85	20	0
171	0	100	20	0
172	10	0	20	0
173	10	10	20	0
174	10	20	20	0
175	10	30	20	0
176	10	40	20	0
177	10	55	20	0
178	10	70	20	0
179	10	85	20	0
180	10	100	20	0
181	20	0	20	0
182	20	10	20	0
183	20	20	20	0
184	20	30	20	0
185	20	40	20	0
186	20	55	20	0
187	20	70	20	0
188	20	85	20	0
189	20	100	20	0
190	30	0	20	0
191	30	10	20	0
192	30	20	20	0
193	30	30	20	0
194	30	40	20	0
195	30	55	20	0
196	30	70	20	0
197	30	85	20	0
198	30	100	20	0
199	40	0	20	0
200	40	10	20	0
201	40	20	20	0
202	40	30	20	0
203	40	40	20	0
204	40	55	20	0
205	40	70	20	0
206	40	85	20	0
207	40	100	20	0
208	55	0	20	0
209	55	10	20	0
210	55	20	20	0
211	55	30	20	0
212	55	40	20	0
213	55	55	20	0
214	55	70	20	0
215	55	85	20	0
216	55	100	20	0
217	70	0	20	0
218	70	10	20	0
219	70	20	20	0
220	70	30	20	0
221	70	40	20	0
222	70	55	20	0
223	70	70	20	0
224	70	85	20	0
225	70	100	20	0
226	85	0	20	0
227	85	10	20	0
228	85	20	20	0
229	85	30	20	0
230	85	40	20	0
231	85	55	20	0
232	85	70	20	0
233	85	85	20	0
234	85	100	20	0
235	100	0	20	0
236	100	10	20	0
237	100	20	20	0
238	100	30	20	0
239	100	40	20	0
240	100	55	20	0
241	100	70	20	0
242	100	85	20	0
243	100	100	20	0
244	0	0	30	0
245	0	10	30	0
246	0	20	30	0
247	0	30	30	0
248	0	40	30	0
249	0	55	30	0
250	0	70	30	0
251	0	85	30	0
252	0	100	30	0
253	10	0	30	0
254	10	10	30	0
255	10	20	30	0
256	10	30	30	0
257	10	40	30	0
258	10	55	30	0
259	10	70	30	0
260	10	85	30	0
261	10	100	30	0
262	20	0	30	0
263	20	10	30	0
264	20	20	30	0

Table 2 (*continued*)

ID No.	% C	% M	% Y	% K
265	20	30	30	0
266	20	40	30	0
267	20	55	30	0
268	20	70	30	0
269	20	85	30	0
270	20	100	30	0
271	30	0	30	0
272	30	10	30	0
273	30	20	30	0
274	30	30	30	0
275	30	40	30	0
276	30	55	30	0
277	30	70	30	0
278	30	85	30	0
279	30	100	30	0
280	40	0	30	0
281	40	10	30	0
282	40	20	30	0
283	40	30	30	0
284	40	40	30	0
285	40	55	30	0
286	40	70	30	0
287	40	85	30	0
288	40	100	30	0
289	55	0	30	0
290	55	10	30	0
291	55	20	30	0
292	55	30	30	0
293	55	40	30	0
294	55	55	30	0
295	55	70	30	0
296	55	85	30	0
297	55	100	30	0
298	70	0	30	0
299	70	10	30	0
300	70	20	30	0
301	70	30	30	0
302	70	40	30	0
303	70	55	30	0
304	70	70	30	0
305	70	85	30	0
306	70	100	30	0
307	85	0	30	0
308	85	10	30	0
309	85	20	30	0
310	85	30	30	0
311	85	40	30	0
312	85	55	30	0
313	85	70	30	0
314	85	85	30	0
315	85	100	30	0
316	100	0	30	0
317	100	10	30	0
318	100	20	30	0
319	100	30	30	0
320	100	40	30	0
321	100	55	30	0
322	100	70	30	0
323	100	85	30	0
324	100	100	30	0
325	0	0	40	0
326	0	10	40	0
327	0	20	40	0
328	0	30	40	0
329	0	40	40	0
330	0	55	40	0
331	0	70	40	0
332	0	85	40	0
333	0	100	40	0
334	10	0	40	0
335	10	10	40	0
336	10	20	40	0
337	10	30	40	0
338	10	40	40	0
339	10	55	40	0
340	10	70	40	0
341	10	85	40	0
342	10	100	40	0
343	20	0	40	0
344	20	10	40	0
345	20	20	40	0
346	20	30	40	0
347	20	40	40	0
348	20	55	40	0
349	20	70	40	0
350	20	85	40	0
351	20	100	40	0
352	30	0	40	0
353	30	10	40	0
354	30	20	40	0
355	30	30	40	0
356	30	40	40	0
357	30	55	40	0
358	30	70	40	0
359	30	85	40	0
360	30	100	40	0
361	40	0	40	0
362	40	10	40	0
363	40	20	40	0
364	40	30	40	0
365	40	40	40	0
366	40	55	40	0
367	40	70	40	0
368	40	85	40	0
369	40	100	40	0
370	55	0	40	0
371	55	10	40	0
372	55	20	40	0
373	55	30	40	0
374	55	40	40	0
375	55	55	40	0
376	55	70	40	0
377	55	85	40	0
378	55	100	40	0
379	70	0	40	0
380	70	10	40	0
381	70	20	40	0
382	70	30	40	0
383	70	40	40	0
384	70	55	40	0
385	70	70	40	0
386	70	85	40	0
387	70	100	40	0
388	85	0	40	0
389	85	10	40	0
390	85	20	40	0
391	85	30	40	0
392	85	40	40	0
393	85	55	40	0
394	85	70	40	0
395	85	85	40	0
396	85	100	40	0

Table 2 (*continued*)

ID No.	% C	% M	% Y	% K
397	100	0	40	0
398	100	10	40	0
399	100	20	40	0
400	100	30	40	0
401	100	40	40	0
402	100	55	40	0
403	100	70	40	0
404	100	85	40	0
405	100	100	40	0
406	0	0	55	0
407	0	10	55	0
408	0	20	55	0
409	0	30	55	0
410	0	40	55	0
411	0	55	55	0
412	0	70	55	0
413	0	85	55	0
414	0	100	55	0
415	10	0	55	0
416	10	10	55	0
417	10	20	55	0
418	10	30	55	0
419	10	40	55	0
420	10	55	55	0
421	10	70	55	0
422	10	85	55	0
423	10	100	55	0
424	20	0	55	0
425	20	10	55	0
426	20	20	55	0
427	20	30	55	0
428	20	40	55	0
429	20	55	55	0
430	20	70	55	0
431	20	85	55	0
432	20	100	55	0
433	30	0	55	0
434	30	10	55	0
435	30	20	55	0
436	30	30	55	0
437	30	40	55	0
438	30	55	55	0
439	30	70	55	0
440	30	85	55	0
441	30	100	55	0
442	40	0	55	0
443	40	10	55	0
444	40	20	55	0
445	40	30	55	0
446	40	40	55	0
447	40	55	55	0
448	40	70	55	0
449	40	85	55	0
450	40	100	55	0
451	55	0	55	0
452	55	10	55	0
453	55	20	55	0
454	55	30	55	0
455	55	40	55	0
456	55	55	55	0
457	55	70	55	0
458	55	85	55	0
459	55	100	55	0
460	70	0	55	0
461	70	10	55	0
462	70	20	55	0
463	70	30	55	0
464	70	40	55	0
465	70	55	55	0
466	70	70	55	0
467	70	85	55	0
468	70	100	55	0
469	85	0	55	0
470	85	10	55	0
471	85	20	55	0
472	85	30	55	0
473	85	40	55	0
474	85	55	55	0
475	85	70	55	0
476	85	85	55	0
477	85	100	55	0
478	100	0	55	0
479	100	10	55	0
480	100	20	55	0
481	100	30	55	0
482	100	40	55	0
483	100	55	55	0
484	100	70	55	0
485	100	85	55	0
486	100	100	55	0
487	0	0	70	0
488	0	10	70	0
489	0	20	70	0
490	0	30	70	0
491	0	40	70	0
492	0	55	70	0
493	0	70	70	0
494	0	85	70	0
495	0	100	70	0
496	10	0	70	0
497	10	10	70	0
498	10	20	70	0
499	10	30	70	0
500	10	40	70	0
501	10	55	70	0
502	10	70	70	0
503	10	85	70	0
504	10	100	70	0
505	20	0	70	0
506	20	10	70	0
507	20	20	70	0
508	20	30	70	0
509	20	40	70	0
510	20	55	70	0
511	20	70	70	0
512	20	85	70	0
513	20	100	70	0
514	30	0	70	0
515	30	10	70	0
516	30	20	70	0
517	30	30	70	0
518	30	40	70	0
519	30	55	70	0
520	30	70	70	0
521	30	85	70	0
522	30	100	70	0
523	40	0	70	0
524	40	10	70	0
525	40	20	70	0
526	40	30	70	0
527	40	40	70	0
528	40	55	70	0

Table 2 (*continued*)

ID No.	% C	% M	% Y	% K
529	40	70	70	0
530	40	85	70	0
531	40	100	70	0
532	55	0	70	0
533	55	10	70	0
534	55	20	70	0
535	55	30	70	0
536	55	40	70	0
537	55	55	70	0
538	55	70	70	0
539	55	85	70	0
540	55	100	70	0
541	70	0	70	0
542	70	10	70	0
543	70	20	70	0
544	70	30	70	0
545	70	40	70	0
546	70	55	70	0
547	70	70	70	0
548	70	85	70	0
549	70	100	70	0
550	85	0	70	0
551	85	10	70	0
552	85	20	70	0
553	85	30	70	0
554	85	40	70	0
555	85	55	70	0
556	85	70	70	0
557	85	85	70	0
558	85	100	70	0
559	100	0	70	0
560	100	10	70	0
561	100	20	70	0
562	100	30	70	0
563	100	40	70	0
564	100	55	70	0
565	100	70	70	0
566	100	85	70	0
567	100	100	70	0
568	0	0	85	0
569	0	10	85	0
570	0	20	85	0
571	0	30	85	0
572	0	40	85	0
573	0	55	85	0
574	0	70	85	0
575	0	85	85	0
576	0	100	85	0
577	10	0	85	0
578	10	10	85	0
579	10	20	85	0
580	10	30	85	0
581	10	40	85	0
582	10	55	85	0
583	10	70	85	0
584	10	85	85	0
585	10	100	85	0
586	20	0	85	0
587	20	10	85	0
588	20	20	85	0
589	20	30	85	0
590	20	40	85	0
591	20	55	85	0
592	20	70	85	0
593	20	85	85	0
594	20	100	85	0
595	30	0	85	0
596	30	10	85	0
597	30	20	85	0
598	30	30	85	0
599	30	40	85	0
600	30	55	85	0
601	30	70	85	0
602	30	85	85	0
603	30	100	85	0
604	40	0	85	0
605	40	10	85	0
606	40	20	85	0
607	40	30	85	0
608	40	40	85	0
609	40	55	85	0
610	40	70	85	0
611	40	85	85	0
612	40	100	85	0
613	55	0	85	0
614	55	10	85	0
615	55	20	85	0
616	55	30	85	0
617	55	40	85	0
618	55	55	85	0
619	55	70	85	0
620	55	85	85	0
621	55	100	85	0
622	70	0	85	0
623	70	10	85	0
624	70	20	85	0
625	70	30	85	0
626	70	40	85	0
627	70	55	85	0
628	70	70	85	0
629	70	85	85	0
630	70	100	85	0
631	85	0	85	0
632	85	10	85	0
633	85	20	85	0
634	85	30	85	0
635	85	40	85	0
636	85	55	85	0
637	85	70	85	0
638	85	85	85	0
639	85	100	85	0
640	100	0	85	0
641	100	10	85	0
642	100	20	85	0
643	100	30	85	0
644	100	40	85	0
645	100	55	85	0
646	100	70	85	0
647	100	85	85	0
648	100	100	85	0
649	0	0	100	0
650	0	10	100	0
651	0	20	100	0
652	0	30	100	0
653	0	40	100	0
654	0	55	100	0
655	0	70	100	0
656	0	85	100	0
657	0	100	100	0
658	10	0	100	0
659	10	10	100	0
660	10	20	100	0

Table 2 (*continued*)

ID No.	% C	% M	% Y	% K
661	10	30	100	0
662	10	40	100	0
663	10	55	100	0
664	10	70	100	0
665	10	85	100	0
666	10	100	100	0
667	20	0	100	0
668	20	10	100	0
669	20	20	100	0
670	20	30	100	0
671	20	40	100	0
672	20	55	100	0
673	20	70	100	0
674	20	85	100	0
675	20	100	100	0
676	30	0	100	0
677	30	10	100	0
678	30	20	100	0
679	30	30	100	0
680	30	40	100	0
681	30	55	100	0
682	30	70	100	0
683	30	85	100	0
684	30	100	100	0
685	40	0	100	0
686	40	10	100	0
687	40	20	100	0
688	40	30	100	0
689	40	40	100	0
690	40	55	100	0
691	40	70	100	0
692	40	85	100	0
693	40	100	100	0
694	55	0	100	0
695	55	10	100	0
696	55	20	100	0
697	55	30	100	0
698	55	40	100	0
699	55	55	100	0
700	55	70	100	0
701	55	85	100	0
702	55	100	100	0
703	70	0	100	0
704	70	10	100	0
705	70	20	100	0
706	70	30	100	0
707	70	40	100	0
708	70	55	100	0
709	70	70	100	0
710	70	85	100	0
711	70	100	100	0
712	85	0	100	0
713	85	10	100	0
714	85	20	100	0
715	85	30	100	0
716	85	40	100	0
717	85	55	100	0
718	85	70	100	0
719	85	85	100	0
720	85	100	100	0
721	100	0	100	0
722	100	10	100	0
723	100	20	100	0
724	100	30	100	0
725	100	40	100	0
726	100	55	100	0
727	100	70	100	0
728	100	85	100	0
729	100	100	100	0
730	0	0	0	20
731	0	10	0	20
732	0	20	0	20
733	0	40	0	20
734	0	70	0	20
735	0	100	0	20
736	10	0	0	20
737	10	10	0	20
738	10	20	0	20
739	10	40	0	20
740	10	70	0	20
741	10	100	0	20
742	20	0	0	20
743	20	10	0	20
744	20	20	0	20
745	20	40	0	20
746	20	70	0	20
747	20	100	0	20
748	40	0	0	20
749	40	10	0	20
750	40	20	0	20
751	40	40	0	20
752	40	70	0	20
753	40	100	0	20
754	70	0	0	20
755	70	10	0	20
756	70	20	0	20
757	70	40	0	20
758	70	70	0	20
759	70	100	0	20
760	100	0	0	20
761	100	10	0	20
762	100	20	0	20
763	100	40	0	20
764	100	70	0	20
765	100	100	0	20
766	0	0	10	20
767	0	10	10	20
768	0	20	10	20
769	0	40	10	20
770	0	70	10	20
771	0	100	10	20
772	10	0	10	20
773	10	10	10	20
774	10	20	10	20
775	10	40	10	20
776	10	70	10	20
777	10	100	10	20
778	20	0	10	20
779	20	10	10	20
780	20	20	10	20
781	20	40	10	20
782	20	70	10	20
783	20	100	10	20
784	40	0	10	20
785	40	10	10	20
786	40	20	10	20
787	40	40	10	20
788	40	70	10	20
789	40	100	10	20
790	70	0	10	20
791	70	10	10	20
792	70	20	10	20

Table 2 (*continued*)

ID No.	% C	% M	% Y	% K
793	70	40	10	20
794	70	70	10	20
795	70	100	10	20
796	100	0	10	20
797	100	10	10	20
798	100	20	10	20
799	100	40	10	20
800	100	70	10	20
801	100	100	10	20
802	0	0	20	20
803	0	10	20	20
804	0	20	20	20
805	0	40	20	20
806	0	70	20	20
807	0	100	20	20
808	10	0	20	20
809	10	10	20	20
810	10	20	20	20
811	10	40	20	20
812	10	70	20	20
813	10	100	20	20
814	20	0	20	20
815	20	10	20	20
816	20	20	20	20
817	20	40	20	20
818	20	70	20	20
819	20	100	20	20
820	40	0	20	20
821	40	10	20	20
822	40	20	20	20
823	40	40	20	20
824	40	70	20	20
825	40	100	20	20
826	70	0	20	20
827	70	10	20	20
828	70	20	20	20
829	70	40	20	20
830	70	70	20	20
831	70	100	20	20
832	100	0	20	20
833	100	10	20	20
834	100	20	20	20
835	100	40	20	20
836	100	70	20	20
837	100	100	20	20
838	0	0	40	20
839	0	10	40	20
840	0	20	40	20
841	0	40	40	20
842	0	70	40	20
843	0	100	40	20
844	10	0	40	20
845	10	10	40	20
846	10	20	40	20
847	10	40	40	20
848	10	70	40	20
849	10	100	40	20
850	20	0	40	20
851	20	10	40	20
852	20	20	40	20
853	20	40	40	20
854	20	70	40	20
855	20	100	40	20
856	40	0	40	20
857	40	10	40	20
858	40	20	40	20
859	40	40	40	20
860	40	70	40	20
861	40	100	40	20
862	70	0	40	20
863	70	10	40	20
864	70	20	40	20
865	70	40	40	20
866	70	70	40	20
867	70	100	40	20
868	100	0	40	20
869	100	10	40	20
870	100	20	40	20
871	100	40	40	20
872	100	70	40	20
873	100	100	40	20
874	0	0	70	20
875	0	10	70	20
876	0	20	70	20
877	0	40	70	20
878	0	70	70	20
879	0	100	70	20
880	10	0	70	20
881	10	10	70	20
882	10	20	70	20
883	10	40	70	20
884	10	70	70	20
885	10	100	70	20
886	20	0	70	20
887	20	10	70	20
888	20	20	70	20
889	20	40	70	20
890	20	70	70	20
891	20	100	70	20
892	40	0	70	20
893	40	10	70	20
894	40	20	70	20
895	40	40	70	20
896	40	70	70	20
897	40	100	70	20
898	70	0	70	20
899	70	10	70	20
900	70	20	70	20
901	70	40	70	20
902	70	70	70	20
903	70	100	70	20
904	100	0	70	20
905	100	10	70	20
906	100	20	70	20
907	100	40	70	20
908	100	70	70	20
909	100	100	70	20
910	0	0	100	20
911	0	10	100	20
912	0	20	100	20
913	0	40	100	20
914	0	70	100	20
915	0	100	100	20
916	10	0	100	20
917	10	10	100	20
918	10	20	100	20
919	10	40	100	20
920	10	70	100	20
921	10	100	100	20
922	20	0	100	20
923	20	10	100	20
924	20	20	100	20

Table 2 (*continued*)

ID No.	% C	% M	% Y	% K
925	20	40	100	20
926	20	70	100	20
927	20	100	100	20
928	40	0	100	20
929	40	10	100	20
930	40	20	100	20
931	40	40	100	20
932	40	70	100	20
933	40	100	100	20
934	70	0	100	20
935	70	10	100	20
936	70	20	100	20
937	70	40	100	20
938	70	70	100	20
939	70	100	100	20
940	100	0	100	20
941	100	10	100	20
942	100	20	100	20
943	100	40	100	20
944	100	70	100	20
945	100	100	100	20
946	0	0	0	40
947	0	20	0	40
948	0	40	0	40
949	0	70	0	40
950	0	100	0	40
951	20	0	0	40
952	20	20	0	40
953	20	40	0	40
954	20	70	0	40
955	20	100	0	40
956	40	0	0	40
957	40	20	0	40
958	40	40	0	40
959	40	70	0	40
960	40	100	0	40
961	70	0	0	40
962	70	20	0	40
963	70	40	0	40
964	70	70	0	40
965	70	100	0	40
966	100	0	0	40
967	100	20	0	40
968	100	40	0	40
969	100	70	0	40
970	100	100	0	40
971	0	0	20	40
972	0	20	20	40
973	0	40	20	40
974	0	70	20	40
975	0	100	20	40
976	20	0	20	40
977	20	20	20	40
978	20	40	20	40
979	20	70	20	40
980	20	100	20	40
981	40	0	20	40
982	40	20	20	40
983	40	40	20	40
984	40	70	20	40
985	40	100	20	40
986	70	0	20	40
987	70	20	20	40
988	70	40	20	40
989	70	70	20	40
990	70	100	20	40
991	100	0	20	40
992	100	20	20	40
993	100	40	20	40
994	100	70	20	40
995	100	100	20	40
996	0	0	40	40
997	0	20	40	40
998	0	40	40	40
999	0	70	40	40
1000	0	100	40	40
1001	20	0	40	40
1002	20	20	40	40
1003	20	40	40	40
1004	20	70	40	40
1005	20	100	40	40
1006	40	0	40	40
1007	40	20	40	40
1008	40	40	40	40
1009	40	70	40	40
1010	40	100	40	40
1011	70	0	40	40
1012	70	20	40	40
1013	70	40	40	40
1014	70	70	40	40
1015	70	100	40	40
1016	100	0	40	40
1017	100	20	40	40
1018	100	40	40	40
1019	100	70	40	40
1020	100	100	40	40
1021	0	0	70	40
1022	0	20	70	40
1023	0	40	70	40
1024	0	70	70	40
1025	0	100	70	40
1026	20	0	70	40
1027	20	20	70	40
1028	20	40	70	40
1029	20	70	70	40
1030	20	100	70	40
1031	40	0	70	40
1032	40	20	70	40
1033	40	40	70	40
1034	40	70	70	40
1035	40	100	70	40
1036	70	0	70	40
1037	70	20	70	40
1038	70	40	70	40
1039	70	70	70	40
1040	70	100	70	40
1041	100	0	70	40
1042	100	20	70	40
1043	100	40	70	40
1044	100	70	70	40
1045	100	100	70	40
1046	0	0	100	40
1047	0	20	100	40
1048	0	40	100	40
1049	0	70	100	40
1050	0	100	100	40
1051	20	0	100	40
1052	20	20	100	40
1053	20	40	100	40
1054	20	70	100	40
1055	20	100	100	40
1056	40	0	100	40

Table 2 (*continued*)

ID No.	% C	% M	% Y	% K
1057	40	20	100	40
1058	40	40	100	40
1059	40	70	100	40
1060	40	100	100	40
1061	70	0	100	40
1062	70	20	100	40
1063	70	40	100	40
1064	70	70	100	40
1065	70	100	100	40
1066	100	0	100	40
1067	100	20	100	40
1068	100	40	100	40
1069	100	70	100	40
1070	100	100	100	40
1071	0	0	0	60
1072	0	20	0	60
1073	0	40	0	60
1074	0	70	0	60
1075	0	100	0	60
1076	20	0	0	60
1077	20	20	0	60
1078	20	40	0	60
1079	20	70	0	60
1080	20	100	0	60
1081	40	0	0	60
1082	40	20	0	60
1083	40	40	0	60
1084	40	70	0	60
1085	40	100	0	60
1086	70	0	0	60
1087	70	20	0	60
1088	70	40	0	60
1089	70	70	0	60
1090	70	100	0	60
1091	100	0	0	60
1092	100	20	0	60
1093	100	40	0	60
1094	100	70	0	60
1095	100	100	0	60
1096	0	0	20	60
1097	0	20	20	60
1098	0	40	20	60
1099	0	70	20	60
1100	0	100	20	60

ID No.	% C	% M	% Y	% K
1101	20	0	20	60
1102	20	20	20	60
1103	20	40	20	60
1104	20	70	20	60
1105	20	100	20	60
1106	40	0	20	60
1107	40	20	20	60
1108	40	40	20	60
1109	40	70	20	60
1110	40	100	20	60
1111	70	0	20	60
1112	70	20	20	60
1113	70	40	20	60
1114	70	70	20	60
1115	70	100	20	60
1116	100	0	20	60
1117	100	20	20	60
1118	100	40	20	60
1119	100	70	20	60
1120	100	100	20	60
1121	0	0	40	60
1122	0	20	40	60
1123	0	40	40	60
1124	0	70	40	60
1125	0	100	40	60
1126	20	0	40	60
1127	20	20	40	60
1128	20	40	40	60
1129	20	70	40	60
1130	20	100	40	60
1131	40	0	40	60
1132	40	20	40	60
1133	40	40	40	60
1134	40	70	40	60
1135	40	100	40	60
1136	70	0	40	60
1137	70	20	40	60
1138	70	40	40	60
1139	70	70	40	60
1140	70	100	40	60
1141	100	0	40	60
1142	100	20	40	60
1143	100	40	40	60
1144	100	70	40	60

ID No.	% C	% M	% Y	% K
1145	100	100	40	60
1146	0	0	70	60
1147	0	20	70	60
1148	0	40	70	60
1149	0	70	70	60
1150	0	100	70	60
1151	20	0	70	60
1152	20	20	70	60
1153	20	40	70	60
1154	20	70	70	60
1155	20	100	70	60
1156	40	0	70	60
1157	40	20	70	60
1158	40	40	70	60
1159	40	70	70	60
1160	40	100	70	60
1161	70	0	70	60
1162	70	20	70	60
1163	70	40	70	60
1164	70	70	70	60
1165	70	100	70	60
1166	100	0	70	60
1167	100	20	70	60
1168	100	40	70	60
1169	100	70	70	60
1170	100	100	70	60
1171	0	0	100	60
1172	0	20	100	60
1173	0	40	100	60
1174	0	70	100	60
1175	0	100	100	60
1176	20	0	100	60
1177	20	20	100	60
1178	20	40	100	60
1179	20	70	100	60
1180	20	100	100	60
1181	40	0	100	60
1182	40	20	100	60
1183	40	40	100	60
1184	40	70	100	60
1185	40	100	100	60
1186	70	0	100	60
1187	70	20	100	60
1188	70	40	100	60

Table 2 (*continued*)

ID No.	% C	% M	% Y	% K
1189	70	70	100	60
1190	70	100	100	60
1191	100	0	100	60
1192	100	20	100	60
1193	100	40	100	60
1194	100	70	100	60
1195	100	100	100	60
1196	0	0	0	80
1197	0	40	0	80
1198	0	70	0	80
1199	0	100	0	80
1200	40	0	0	80
1201	40	40	0	80
1202	40	70	0	80
1203	40	100	0	80
1204	70	0	0	80
1205	70	40	0	80
1206	70	70	0	80
1207	70	100	0	80
1208	100	0	0	80
1209	100	40	0	80
1210	100	70	0	80
1211	100	100	0	80
1212	0	0	40	80
1213	0	40	40	80
1214	0	70	40	80
1215	0	100	40	80
1216	40	0	40	80
1217	40	40	40	80
1218	40	70	40	80
1219	40	100	40	80
1220	70	0	40	80
1221	70	40	40	80
1222	70	70	40	80
1223	70	100	40	80
1224	100	0	40	80
1225	100	40	40	80
1226	100	70	40	80
1227	100	100	40	80
1228	0	0	70	80
1229	0	40	70	80
1230	0	70	70	80
1231	0	100	70	80
1232	40	0	70	80

ID No.	% C	% M	% Y	% K
1233	40	40	70	80
1234	40	70	70	80
1235	40	100	70	80
1236	70	0	70	80
1237	70	40	70	80
1238	70	70	70	80
1239	70	100	70	80
1240	100	0	70	80
1241	100	40	70	80
1242	100	70	70	80
1243	100	100	70	80
1244	0	0	100	80
1245	0	40	100	80
1246	0	70	100	80
1247	0	100	100	80
1248	40	0	100	80
1249	40	40	100	80
1250	40	70	100	80
1251	40	100	100	80
1252	70	0	100	80
1253	70	40	100	80
1254	70	70	100	80
1255	70	100	100	80
1256	100	0	100	80
1257	100	40	100	80
1258	100	70	100	80
1259	100	100	100	80
1260	0	0	0	100
1261	0	40	0	100
1262	0	100	0	100
1263	40	0	0	100
1264	40	40	0	100
1265	40	100	0	100
1266	100	0	0	100
1267	100	40	0	100
1268	100	100	0	100
1269	0	0	40	100
1270	0	40	40	100
1271	0	100	40	100
1272	40	0	40	100
1273	40	40	40	100
1274	40	100	40	100
1275	100	0	40	100
1276	100	40	40	100

ID No.	% C	% M	% Y	% K
1277	100	100	40	100
1278	0	0	100	100
1279	0	40	100	100
1280	0	100	100	100
1281	40	0	100	100
1282	40	40	100	100
1283	40	100	100	100
1284	100	0	100	100
1285	100	40	100	100
1286	100	100	100	100
1287	100	0	0	0
1288	98	0	0	0
1289	95	0	0	0
1290	90	0	0	0
1291	85	0	0	0
1292	80	0	0	0
1293	75	0	0	0
1294	70	0	0	0
1295	60	0	0	0
1296	50	0	0	0
1297	40	0	0	0
1298	30	0	0	0
1299	25	0	0	0
1300	20	0	0	0
1301	15	0	0	0
1302	10	0	0	0
1303	7	0	0	0
1304	5	0	0	0
1305	3	0	0	0
1306	2	0	0	0
1307	0	100	0	0
1308	0	98	0	0
1309	0	95	0	0
1310	0	90	0	0
1311	0	85	0	0
1312	0	80	0	0
1313	0	75	0	0
1314	0	70	0	0
1315	0	60	0	0
1316	0	50	0	0
1317	0	40	0	0
1318	0	30	0	0
1319	0	25	0	0
1320	0	20	0	0

Table 2 (*continued*)

ID No.	% C	% M	% Y	% K
1321	0	15	0	0
1322	0	10	0	0
1323	0	7	0	0
1324	0	5	0	0
1325	0	3	0	0
1326	0	2	0	0
1327	0	0	100	0
1328	0	0	98	0
1329	0	0	95	0
1330	0	0	90	0
1331	0	0	85	0
1332	0	0	80	0
1333	0	0	75	0
1334	0	0	70	0
1335	0	0	60	0
1336	0	0	50	0
1337	0	0	40	0
1338	0	0	30	0
1339	0	0	25	0
1340	0	0	20	0
1341	0	0	15	0
1342	0	0	10	0
1343	0	0	7	0
1344	0	0	5	0
1345	0	0	3	0
1346	0	0	2	0
1347	0	0	0	100
1348	0	0	0	98
1349	0	0	0	95
1350	0	0	0	90
1351	0	0	0	85
1352	0	0	0	80
1353	0	0	0	75
1354	0	0	0	70
1355	0	0	0	60
1356	0	0	0	50
1357	0	0	0	40
1358	0	0	0	30
1359	0	0	0	25
1360	0	0	0	20
1361	0	0	0	15
1362	0	0	0	10
1363	0	0	0	7
1364	0	0	0	5
1365	0	0	0	3
1366	0	0	0	2
1367	0	0	0	0
1368	100	85	85	0
1369	80	65	65	0
1370	60	45	45	0
1371	40	27	27	0
1372	20	12	12	0
1373	10	6	6	0
1374	5	3	3	0
1375	40	27	27	10
1376	20	12	12	10
1377	10	6	6	10
1378	60	45	45	20
1379	40	27	27	20
1380	20	12	12	20
1381	10	6	6	20
1382	80	65	65	40
1383	60	45	45	40
1384	40	27	27	40
1385	20	12	12	40
1386	10	6	6	40
1387	100	85	85	60
1388	80	65	65	60
1389	60	45	45	60
1390	40	27	27	60
1391	20	12	12	60
1392	10	6	6	60
1393	100	85	85	80
1394	80	65	65	80
1395	60	45	45	80
1396	40	27	27	80
1397	20	12	12	80
1398	10	6	6	80
1399	100	85	85	100
1400	80	65	65	100
1401	60	45	45	100
1402	40	27	27	100
1403	20	12	12	100
1404	10	6	6	100
1405	100	0	0	70
1406	0	100	0	70
1407	0	0	100	70
1408	100	100	0	70
1409	100	0	100	70
1410	0	100	100	70
1411	40	40	0	70
1412	40	0	40	70
1413	0	40	40	70
1414	3	3	0	0
1415	3	0	3	0
1416	0	3	3	0
1417	3	3	3	0
1418	3	0	0	3
1419	0	3	0	3
1420	3	3	0	3
1421	0	0	3	3
1422	3	0	3	3
1423	0	3	3	3
1424	3	3	3	3
1425	7	7	0	0
1426	7	0	7	0
1427	0	7	7	0
1428	7	7	7	0
1429	7	0	0	7
1430	0	7	0	7
1431	7	7	0	7
1432	0	0	7	7
1433	7	0	7	7
1434	0	7	7	7
1435	7	7	7	7
1436	40	3	0	0
1437	3	40	0	0
1438	40	0	3	0
1439	40	3	3	0
1440	0	40	3	0
1441	3	40	3	0
1442	40	40	3	0
1443	3	0	40	0
1444	0	3	40	0
1445	3	3	40	0
1446	40	3	40	0
1447	3	40	40	0
1448	40	0	0	3
1449	40	3	0	3
1450	0	40	0	3
1451	3	40	0	3
1452	40	40	0	3

Table 2 (*continued*)

ID No.	% C	% M	% Y	% K
1453	40	0	3	3
1454	40	3	3	3
1455	0	40	3	3
1456	3	40	3	3
1457	40	40	3	3
1458	0	0	40	3
1459	3	0	40	3
1460	40	0	40	3
1461	0	3	40	3
1462	3	3	40	3
1463	40	3	40	3
1464	0	40	40	3
1465	3	40	40	3
1466	40	40	40	3
1467	3	0	0	40
1468	0	3	0	40
1469	3	3	0	40
1470	40	3	0	40
1471	3	40	0	40
1472	0	0	3	40
1473	3	0	3	40
1474	40	0	3	40
1475	0	3	3	40
1476	3	3	3	40
1477	40	3	3	40
1478	0	40	3	40
1479	3	40	3	40
1480	40	40	3	40
1481	3	0	40	40
1482	0	3	40	40
1483	3	3	40	40
1484	40	3	40	40
1485	3	40	40	40
1486	0	0	0	10
1487	0	0	10	10
1488	0	0	20	10
1489	0	0	40	10
1490	0	0	70	10
1491	0	10	0	10
1492	0	10	10	10
1493	0	10	20	10
1494	0	10	40	10
1495	0	10	70	10
1496	0	20	0	10
1497	0	20	10	10
1498	0	20	20	10
1499	0	20	40	10
1500	0	20	70	10
1501	0	40	0	10
1502	0	40	10	10
1503	0	40	20	10
1504	0	40	40	10
1505	0	40	70	10
1506	0	70	0	10
1507	0	70	10	10
1508	0	70	20	10
1509	0	70	40	10
1510	0	70	70	10
1511	10	0	0	10
1512	10	0	10	10
1513	10	0	20	10
1514	10	0	40	10
1515	10	0	70	10
1516	10	10	0	10
1517	10	10	10	10
1518	10	10	20	10
1519	10	10	40	10
1520	10	10	70	10
1521	10	20	0	10
1522	10	20	10	10
1523	10	20	20	10
1524	10	20	40	10
1525	10	20	70	10
1526	10	40	0	10
1527	10	40	10	10
1528	10	40	20	10
1529	10	40	40	10
1530	10	40	70	10
1531	10	70	0	10
1532	10	70	10	10
1533	10	70	20	10
1534	10	70	40	10
1535	10	70	70	10
1536	20	0	0	10
1537	20	0	10	10
1538	20	0	20	10
1539	20	0	40	10
1540	20	0	70	10
1541	20	10	0	10
1542	20	10	10	10
1543	20	10	20	10
1544	20	10	40	10
1545	20	10	70	10
1546	20	20	0	10
1547	20	20	10	10
1548	20	20	20	10
1549	20	20	40	10
1550	20	20	70	10
1551	20	40	0	10
1552	20	40	10	10
1553	20	40	20	10
1554	20	40	40	10
1555	20	40	70	10
1556	20	70	0	10
1557	20	70	10	10
1558	20	70	20	10
1559	20	70	40	10
1560	20	70	70	10
1561	40	0	0	10
1562	40	0	10	10
1563	40	0	20	10
1564	40	0	40	10
1565	40	0	70	10
1566	40	10	0	10
1567	40	10	10	10
1568	40	10	20	10
1569	40	10	40	10
1570	40	10	70	10
1571	40	20	0	10
1572	40	20	10	10
1573	40	20	20	10
1574	40	20	40	10
1575	40	20	70	10
1576	40	40	0	10
1577	40	40	10	10
1578	40	40	20	10
1579	40	40	40	10
1580	40	40	70	10
1581	40	70	0	10
1582	40	70	10	10
1583	40	70	20	10
1584	40	70	40	10

Table 2 (*continued*)

ID No.	% C	% M	% Y	% K
1585	40	70	70	10
1586	70	0	0	10
1587	70	0	10	10
1588	70	0	20	10
1589	70	0	40	10
1590	70	0	70	10
1591	70	10	0	10
1592	70	10	10	10
1593	70	10	20	10
1594	70	10	40	10
1595	70	10	70	10

ID No.	% C	% M	% Y	% K
1596	70	20	0	10
1597	70	20	10	10
1598	70	20	20	10
1599	70	20	40	10
1600	70	20	70	10
1601	70	40	0	10
1602	70	40	10	10
1603	70	40	20	10
1604	70	40	40	10
1605	70	40	70	10
1606	70	70	0	10

ID No.	% C	% M	% Y	% K
1607	70	70	10	10
1608	70	70	20	10
1609	70	70	40	10
1610	70	70	70	10
1611	50	40	40	0
1612	100	0	0	10
1613	0	100	0	10
1614	0	0	100	10
1615	0	100	100	10
1616	100	0	100	10
1617	100	100	0	10

Table 3 — Mapping of ISO 12642-1 ink value combinations from ISO 12642-2 data

ISO 12642-1	ISO 12642-2
1	73
2	9
3	649
4	81
5	721
6	657
7	729
8	61
9	541
10	493
11	41
12	329
13	365
14	361
15	21
16	181
17	165
18	1266
19	1262
20	1278
21	1268
22	1284
23	1280
24	1286
25	1260
26	1
27	1290
28	1292
29	55
30	1295
31	1296
32	37
33	28
34	1299
35	19
36	1301
37	10
38	1303
39	1305
40	1310
41	1312
42	7
43	1315
44	1316
45	5
46	4
47	1319
48	3
49	1321
50	2
51	1323
52	1325
53	1330
54	1332
55	487
56	1335
57	1336
58	325
59	244
60	1339
61	163
62	1341
63	82
64	1343
65	1345
66	1350
67	1196
68	1354
69	1071
70	1356
71	946
72	1358
73	1359
74	730
75	1361
76	1362
77	1363
78	1365
79	45
80	369
81	333
82	693
83	653
84	689
85	547
86	685
87	725
88	397
89	401
90	77
91	405
92	225
93	187
94	349
95	513
96	511
97	673
98	507
99	705
100	543
101	561
102	219
103	241
104	223
105	549
106	367
107	185
108	711
109	347
110	709
111	527
112	345
113	183
114	727
115	545
116	363
117	565
118	203
119	567
120	201
121	383
122	1399
123	1393
124	1387
125	1400
126	1394
127	1388
128	1382
129	1401
130	1395
131	1389
132	1383
133	1378
134	1402
135	1396

Table 3 (*continued*)

ISO 12642-1	ISO 12642-2
136	1390
137	1384
138	1379
139	1375
140	1403
141	1397
142	1391
143	1385
144	1380
145	1376
146	1404
147	1398
148	1392
149	1386
150	1381
151	1377
152	1368
153	1369
154	1370
155	1371
156	1372
157	1373
158	1374
159	760
160	735
161	910
162	765
163	940
164	915
165	751
166	856
167	841
168	970
169	1066
170	1050
171	958
172	1006
173	998
174	1405
175	1406
176	1407
177	1408
178	1409
179	1410
180	1411

ISO 12642-1	ISO 12642-2
181	1412
182	1413
183	1
184	2
185	3
186	5
187	7
188	9
189	10
190	11
191	12
192	14
193	16
194	18
195	19
196	20
197	21
198	23
199	25
200	27
201	37
202	38
203	39
204	41
205	43
206	45
207	55
208	56
209	57
210	59
211	61
212	63
213	1287
214	74
215	75
216	77
217	79
218	81
219	82
220	83
221	84
222	86
223	88
224	90
225	91

ISO 12642-1	ISO 12642-2
226	92
227	93
228	95
229	97
230	99
231	100
232	101
233	102
234	104
235	106
236	108
237	118
238	119
239	120
240	122
241	124
242	126
243	136
244	137
245	138
246	140
247	142
248	144
249	154
250	155
251	156
252	158
253	160
254	162
255	163
256	164
257	165
258	167
259	169
260	171
261	172
262	173
263	174
264	176
265	178
266	180
267	181
268	182
269	183
270	185

Table 3 (*continued*)

ISO 12642-1	ISO 12642-2
271	187
272	189
273	199
274	200
275	201
276	203
277	205
278	207
279	217
280	218
281	219
282	221
283	223
284	225
285	235
286	236
287	237
288	239
289	241
290	243
291	325
292	326
293	327
294	329
295	331
296	333
297	334
298	335
299	336
300	338
301	340
302	342
303	343
304	344
305	345
306	347
307	349
308	351
309	361
310	362
311	363
312	365
313	367
314	369
315	379

ISO 12642-1	ISO 12642-2
316	380
317	381
318	383
319	385
320	387
321	397
322	398
323	399
324	401
325	403
326	405
327	487
328	488
329	489
330	491
331	493
332	495
333	496
334	497
335	498
336	500
337	502
338	504
339	505
340	506
341	507
342	509
343	511
344	513
345	523
346	524
347	525
348	527
349	529
350	531
351	541
352	542
353	543
354	545
355	547
356	549
357	559
358	560
359	561
360	563

ISO 12642-1	ISO 12642-2
361	565
362	567
363	649
364	650
365	651
366	653
367	655
368	657
369	658
370	659
371	660
372	662
373	664
374	666
375	667
376	668
377	669
378	671
379	673
380	675
381	685
382	686
383	687
384	689
385	691
386	693
387	703
388	704
389	705
390	707
391	709
392	711
393	721
394	722
395	723
396	725
397	727
398	729
399	730
400	731
401	732
402	733
403	734
404	735
405	736

Table 3 (*continued*)

ISO 12642-1	ISO 12642-2
406	737
407	738
408	739
409	740
410	741
411	742
412	743
413	744
414	745
415	746
416	747
417	748
418	749
419	750
420	751
421	752
422	753
423	754
424	755
425	756
426	757
427	758
428	759
429	760
430	761
431	762
432	763
433	764
434	765
435	766
436	767
437	768
438	769
439	770
440	771
441	772
442	773
443	774
444	775
445	776
446	777
447	778
448	779
449	780
450	781

ISO 12642-1	ISO 12642-2
451	782
452	783
453	784
454	785
455	786
456	787
457	788
458	789
459	790
460	791
461	792
462	793
463	794
464	795
465	796
466	797
467	798
468	799
469	800
470	801
471	802
472	803
473	804
474	805
475	806
476	807
477	808
478	809
479	810
480	811
481	812
482	813
483	814
484	815
485	816
486	817
487	818
488	819
489	820
490	821
491	822
492	823
493	824
494	825
495	826

ISO 12642-1	ISO 12642-2
496	827
497	828
498	829
499	830
500	831
501	832
502	833
503	834
504	835
505	836
506	837
507	838
508	839
509	840
510	841
511	842
512	843
513	844
514	845
515	846
516	847
517	848
518	849
519	850
520	851
521	852
522	853
523	854
524	855
525	856
526	857
527	858
528	859
529	860
530	861
531	862
532	863
533	864
534	865
535	866
536	867
537	868
538	869
539	870
540	871

Table 3 (*continued*)

ISO 12642-1	ISO 12642-2
541	872
542	873
543	874
544	875
545	876
546	877
547	878
548	879
549	880
550	881
551	882
552	883
553	884
554	885
555	886
556	887
557	888
558	889
559	890
560	891
561	892
562	893
563	894
564	895
565	896
566	897
567	898
568	899
569	900
570	901
571	902
572	903
573	904
574	905
575	906
576	907
577	908
578	909
579	910
580	911
581	912
582	913
583	914
584	915
585	916

ISO 12642-1	ISO 12642-2
586	917
587	918
588	919
589	920
590	921
591	922
592	923
593	924
594	925
595	926
596	927
597	928
598	929
599	930
600	931
601	932
602	933
603	934
604	935
605	936
606	937
607	938
608	939
609	940
610	941
611	942
612	943
613	944
614	945
615	946
616	947
617	948
618	949
619	950
620	951
621	952
622	953
623	954
624	955
625	956
626	957
627	958
628	959
629	960
630	961

ISO 12642-1	ISO 12642-2
631	962
632	963
633	964
634	965
635	966
636	967
637	968
638	969
639	970
640	971
641	972
642	973
643	974
644	975
645	976
646	977
647	978
648	979
649	980
650	981
651	982
652	983
653	984
654	985
655	986
656	987
657	988
658	989
659	990
660	991
661	992
662	993
663	994
664	995
665	996
666	997
667	998
668	999
669	1000
670	1001
671	1002
672	1003
673	1004
674	1005
675	1006

Table 3 (*continued*)

ISO 12642-1	ISO 12642-2
676	1007
677	1008
678	1009
679	1010
680	1011
681	1012
682	1013
683	1014
684	1015
685	1016
686	1017
687	1018
688	1019
689	1020
690	1021
691	1022
692	1023
693	1024
694	1025
695	1026
696	1027
697	1028
698	1029
699	1030
700	1031
701	1032
702	1033
703	1034
704	1035
705	1036
706	1037
707	1038
708	1039
709	1040
710	1041
711	1042
712	1043
713	1044
714	1045
715	1046
716	1047
717	1048
718	1049
719	1050
720	1051

ISO 12642-1	ISO 12642-2
721	1052
722	1053
723	1054
724	1055
725	1056
726	1057
727	1058
728	1059
729	1060
730	1061
731	1062
732	1063
733	1064
734	1065
735	1066
736	1067
737	1068
738	1069
739	1070
740	1071
741	1072
742	1073
743	1074
744	1075
745	1076
746	1077
747	1078
748	1079
749	1080
750	1081
751	1082
752	1083
753	1084
754	1085
755	1086
756	1087
757	1088
758	1089
759	1090
760	1091
761	1092
762	1093
763	1094
764	1095
765	1096

ISO 12642-1	ISO 12642-2
766	1097
767	1098
768	1099
769	1100
770	1101
771	1102
772	1103
773	1104
774	1105
775	1106
776	1107
777	1108
778	1109
779	1110
780	1111
781	1112
782	1113
783	1114
784	1115
785	1116
786	1117
787	1118
788	1119
789	1120
790	1121
791	1122
792	1123
793	1124
794	1125
795	1126
796	1127
797	1128
798	1129
799	1130
800	1131
801	1132
802	1133
803	1134
804	1135
805	1136
806	1137
807	1138
808	1139
809	1140
810	1141

Table 3 (*continued*)

ISO 12642-1	ISO 12642-2
811	1142
812	1143
813	1144
814	1145
815	1146
816	1147
817	1148
818	1149
819	1150
820	1151
821	1152
822	1153
823	1154
824	1155
825	1156
826	1157
827	1158
828	1159
829	1160
830	1161
831	1162
832	1163
833	1164
834	1165
835	1166
836	1167
837	1168
838	1169
839	1170
840	1171
841	1172
842	1173
843	1174
844	1175
845	1176
846	1177
847	1178
848	1179
849	1180
850	1181

ISO 12642-1	ISO 12642-2
851	1182
852	1183
853	1184
854	1185
855	1186
856	1187
857	1188
858	1189
859	1190
860	1191
861	1192
862	1193
863	1194
864	1195
865	1196
866	1197
867	1198
868	1199
869	1200
870	1201
871	1202
872	1203
873	1204
874	1205
875	1206
876	1207
877	1208
878	1209
879	1210
880	1211
881	1212
882	1213
883	1214
884	1215
885	1216
886	1217
887	1218
888	1219
889	1220
890	1221

ISO 12642-1	ISO 12642-2
891	1222
892	1223
893	1224
894	1225
895	1226
896	1227
897	1228
898	1229
899	1230
900	1231
901	1232
902	1233
903	1234
904	1235
905	1236
906	1237
907	1238
908	1239
909	1240
910	1241
911	1242
912	1243
913	1244
914	1245
915	1246
916	1247
917	1248
918	1249
919	1250
920	1251
921	1252
922	1253
923	1254
924	1255
925	1256
926	1257
927	1258
928	1259

Annex A
(informative)

Default layouts and image files

Although there is no requirement that any particular arrangement of these data be used for printing characterization targets, it was felt that in many applications default layouts were desirable to facilitate use of the target. Accordingly, two default layouts were proposed. One optimized for visual recognition of the various data set elements and another randomized to minimize the influence of the target arrangement on the measured results obtained.

In order to make the default target layout measurable by a variety of x-y scanning spectrophotometers, and to maintain compatibility with the ECI visual target layout, ink value data sets 1486 to 1617 were included as four columns added to the right side of the existing ECI visual target. The patch size used was 6 mm.

It was felt that the random target should have the same overall physical size. However, before the location of the individual data sets were randomized, 15 patches (tabulated in Table A.1) felt to be useful for process control applications were placed in a block bounded by rows 16 to 18 and columns 23 to 27. The location of the remaining patches were then randomized to minimize potential interactions during printing of the target.

NOTE 1 In order to create a uniform distribution of ink values of each ink within the target, it was necessary to randomize the full target, except for the 15 patches noted above, as a complete set. Therefore, the default random layout of ISO 12642-2 bears no relationship to the ECI 2002 random layout, defined in DIN 16614:2004.

Table A.1 — Layout of process control patches within default random layout

Patch ID	Row	Column	C %	M %	Y %	K %
1287	16	23	100	0	0	0
1307	16	24	0	100	0	0
1327	16	25	0	0	100	0
1347	16	26	0	0	0	100
1369	16	27	80	65	65	0
1296	17	23	50	0	0	0
1316	17	24	0	50	0	0
1336	17	25	0	0	50	0
1356	17	26	0	0	0	50
1611	17	27	50	40	40	0
657	18	23	0	100	100	0
721	18	24	100	0	100	0
81	18	25	100	100	0	0
1367	18	26	0	0	0	0
1372	18	27	20	12	12	0

Figures A.1 and A.2 illustrate the appearance of the default visual and random layouts.

NOTE 2 These illustrations are not at full size and are intended only to show the arrangement of the patches within the layouts.

Imageable versions of these default layouts are provided as PDF and low-resolution TIFF files. The associated file names are ISO 12642-2-visual.TIF, ISO 12642-2-visual.PDF, ISO 12642-2-random.TIF and ISO 12642-2-random.PDF. These image files may be used and distributed without restriction as long as this part of ISO 12642 is shown as the source of these images.

Users are reminded that the physical size of these images may be scaled as necessary based on the printing area available and the reading requirements of the measurement system to be used for evaluation. Furthermore, users may also create layouts of this data set appropriate to their needs and these may be identified with this part of ISO 12642 as long as all 1 617 elements of the data set are included and the requirements of 4.3 are observed.

Data file 12642-2_default.csv provides the relationship between ID number and row/column positions for both the visual and random layouts.

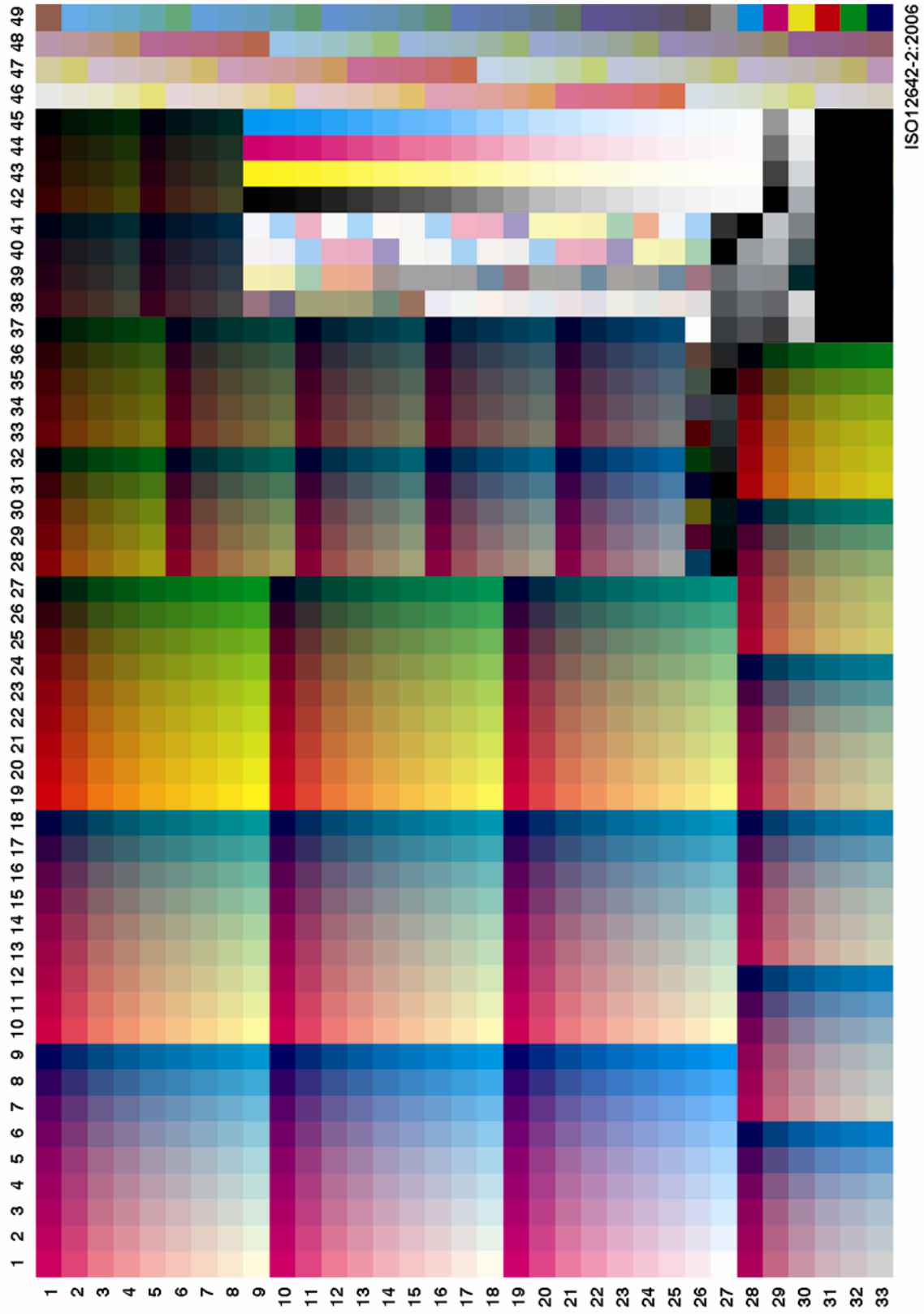

Figure A.1 — Default visual layout

Figure A.2 — Default random layout

Annex B
(informative)

Flesh tone data set

The data set documented in this part of ISO 12642 does not contain any data specifically identified as flesh tones. Two of the images contained in ISO 12640-1, N1 Portrait and N7 Musicians, contain several areas of flesh tone. A number of these have been extracted and are listed in Table B.1. Fleshtone.csv is the electronic representation of these data.

Table B.1 — Flesh tone data sets

ID No.	% C	% M	% Y	% K
1	0	15	15	0
2	0	25	25	0
3	0	30	30	0
4	0	35	35	0
5	3	30	30	0
6	3	35	35	0
7	3	40	40	0
8	5	25	20	0
9	5	25	25	0
10	5	25	30	0
11	5	30	25	0
12	5	30	30	0
13	5	30	35	0
14	5	35	30	0
15	5	35	35	0
16	5	35	40	0
17	5	40	35	0
18	5	40	40	0
19	5	40	45	0
20	5	45	40	0
21	5	45	45	0
22	5	45	50	0
23	10	45	40	0
24	10	45	45	0
25	10	45	50	0
26	10	50	45	0
27	10	50	50	0
28	10	50	55	0
29	15	35	35	0
30	15	45	40	0
31	15	45	45	0
32	15	45	50	0
33	15	50	45	0
34	15	50	50	0
35	15	50	55	0
36	15	55	50	0
37	15	55	55	0
38	15	55	60	0
39	20	45	45	0
40	20	50	50	0
41	20	55	55	0
42	20	60	60	0
43	25	50	50	0
44	25	55	50	0
45	25	60	60	0
46	30	45	45	0
47	30	50	50	0
48	30	55	55	0
49	30	60	60	0
50	35	50	50	0
51	35	55	55	0
52	35	60	60	0
53	35	65	65	0
54	40	50	50	0
55	40	55	55	0
56	40	60	60	0
57	40	65	65	0
58	45	55	55	0
59	45	60	60	0
60	45	65	65	0
61	45	70	70	0
62	45	75	75	0
63	50	65	65	0
64	50	70	70	0
65	50	75	75	0
66	50	80	80	0
67	20	50	40	4
68	25	55	50	4
69	30	55	55	7
70	30	55	60	5
71	30	60	55	4
72	30	60	55	10
73	30	60	60	7
74	30	60	60	10
75	30	65	60	4
76	30	65	60	3
77	35	55	55	20
78	35	60	60	15
79	35	60	60	20
80	35	65	60	20
81	35	65	65	10
82	35	65	65	15
83	35	65	65	20
84	35	70	65	3
85	40	60	60	30
86	40	60	65	25
87	40	60	65	30
88	40	65	65	25
89	40	65	65	30
90	45	65	70	35
91	45	70	70	40
92	50	70	65	30
93	50	70	75	50
94	50	60	60	3
95	50	65	65	3
96	50	75	75	3
97	55	65	60	5
98	55	65	65	5
99	55	70	70	5
100	55	70	70	45
101	55	70	75	5
102	55	70	80	3
103	55	75	80	5
104	55	80	80	5
105	60	70	65	10
106	60	70	70	10
107	60	70	70	50
108	60	75	75	10
109	60	75	75	55
110	60	80	80	10
111	60	80	85	5
112	60	85	90	10

Bibliography

[1] ECI 2002, *Colour Target Recommendation*, available from internet <http://www.eci.org>

[2] DIN 16614:2004, *Graphische Technik — Erweiterte Daten zur Charakterisierung des Vierfarbendrucks — Ergänzendes Element* (Graphic technology — Characterisation data for four-colour-printing — Complementary element)

[3] ISO 12640-1:1997, *Graphic technology — Prepress digital data exchange — Part 1: CMYK standard colour image data (CMYK/SCID)*

[4] ANSI IT8.7/3-2005, *Graphic technology — Input data for characterization of 4-color process printing*

[5] ANSI IT8.7/4-2005, *Graphic technology — Input data for characterization of 4-color process printing — Expanded data set*

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