

ISO/IEC 14496-22:2009-08 (E)

Information technology - Coding of audio-visual objects - Part 22: Open Font Format

Contents		Page
Foreword		vi
Introduction		viii
1	Scope	1
2	Normative references	2
3	Abbreviated terms	2
4	The Open font file format	3
4.1	Description	3
4.2	Filenames	3
4.3	Data types	4
4.4	Table version numbers	5
4.5	Open font structure	5
4.5.1	Table directory	6
4.5.2	Calculating checksums	7
4.6	TrueType collections	7
4.6.1	The TTC file structure	7
4.6.2	TTC header	8
5	Open font tables	9
5.1	General	9
5.2	Required common tables	9
5.2.1	cmap - Character to glyph index mapping table	10
5.2.2	head - Font header	21
5.2.3	hhea - Horizontal header	23
5.2.4	hmtx - Horizontal metrics	24
5.2.5	maxp - Maximum profile	24
5.2.6	name - Naming table	25
5.2.7	OS/2 - Global font information table	45
5.2.8	Font class parameters - see informative Annex B for details	67
5.2.9	post - PostScript	67
5.3	TrueType outline tables	69
5.3.1	cvt - Control value table	69
5.3.2	fpgm - Font program	69
5.3.3	glyf - Glyph data	70
5.3.4	loca - Index to location	73
5.3.5	prep - Control value program	74
5.4	PostScript outline tables	74
5.4.1	CFF - PostScript font program (Compact Font Format) table	74
5.4.2	VORG - Vertical origin table	74
5.5	Bitmap glyph tables	76
5.5.1	EBDT - Embedded bitmap data table	76
5.5.2	EBLC - Embedded bitmap location table	80
5.6	Optional tables	88
5.6.1	DSIG - Digital signature table	88
5.6.2	gasp - Grid-fitting and scan conversion procedure	91
5.6.3	hdmx - Horizontal device metrics	92
5.6.4	kern - Kerning	93
5.6.5	LTSH - Linear threshold	96

5.6.6	PCLT - PCL 5 table	97
5.6.7	VDMX - Vertical device metrics	106
5.6.8	vhea - Vertical header table	108
5.6.9	vmtx - Vertical metric table	112
6	Advanced Open Font layout tables	113
6.1	Advanced Open Font layout extensions	113
6.1.1	Overview of advanced typographic layout extensions	113
6.1.2	TrueType versus OFF layout	115
6.1.3	OFF layout terminology	115
6.1.4	Text processing with OFF layout	118
6.2	OFF layout common table formats	119
6.2.1	Overview	119
6.2.2	Table organization	120
6.2.3	Scripts and languages	122
6.2.4	Features and lookups	124
6.2.5	Common table examples	132
6.3	Advanced typographic tables	142
6.3.1	BASE Baseline table	142
6.3.2	GDEF - The glyph definition table	162
6.3.3	GPOS - The glyph positioning table	175
6.3.4	GSUB - The glyph substitution table	233
6.3.5	JSTF - The justification table	272
6.4	Layout tag registry	283
6.4.1	Scripts tags	283
6.4.2	Language tags	288
6.4.3	Feature tags	301
6.4.4	Baseline tags	360
7	Recommendations for OFF fonts	364
	Byte ordering	364
	'sfnt' version	364
	Mixing outline formats	364
	Filenames	364
	Table alignment and length	365
	First four glyphs in fonts	365
	Shape of .notdef glyph	365
	'BASE' table	366
	'cmap' table	366
	'cvt' table	366
	'fpgm' table	366
	'glyf' table	367
	'hdmx' table	367
	'head' table	367
	'hhea' table	367
	'hmtx' table	367

'kern' table	367
'loca' table	368
'LTSH' table	368
'maxp' table	368
'name' table	368
'OS/2' table	368
'post' table	369
'prep' table	369
'VDMX' table	369
8 General recommendations	369
8.1 Optimized table ordering	369
8.2 Non-standard (Symbol) fonts	370
8.3 Device resolutions	370
8.4 Baseline to baseline distances	370
8.5 Style bits	371
8.6 Drop-out control	372
8.7 Embedded bitmaps	372
8.8 OFF CJK font guidelines	372
Annex A (informative) Patent Statements	373
Annex B (informative) Font Class and Font Subclass parameters	374
Annex C (informative) Earlier versions of OS/2 - OS/2 and Windows metrics	385
Annex D (informative) OFF Mirroring Pairs List	460
Bibliography	467