

ISO 9241-307:2008-11 (E)

Ergonomics of human-system interaction - Part 307: Analysis and compliance test methods for electronic visual displays

Contents		Page
Foreword		x
Introduction		xii
1	Scope	1
2	Normative references	1
3	Terms and definitions	1
4	Guiding principles	2
5	Compliance routes	2
5.1	CRT displays for indoor use -- Display laboratory method	2
5.1.1	Intended context of use	2
	Table 1 -- Intended context of use -- CRT displays	3
5.1.2	Information about the technology	6
	Table 2 -- Basic physical attributes of CRT visual displays	6
5.1.3	Compliance assessment method	6
	Table 3 -- Viewing conditions	7
	Table 4 -- Assessment and reporting for design viewing direction	8
	Table 5 -- Viewing conditions	9
	Table 6 -- Display luminance	10
	Table 7 -- Assessment and reporting for display luminance -- Artificial information	10
	Table 8 -- Assessment and reporting for display luminance -- Reality information	10
	Table 9 -- Luminance	11
	Table 10 -- Assessment and reporting for luminance and contrast adjustment	13
	Table 11 -- Special physical environments	13
	Table 12 -- Visual artefacts	14
	Table 13 -- Assessment and reporting for luminance non-uniformity	15
	Table 14 -- Visual artefacts	15
	Table 15 -- Assessment and reporting for colour non-uniformity	16
	Table 16 -- Visual artefacts	16
	Table 17 -- Visual artefacts	17

Table 18 -- Assessment and reporting for unwanted reflections -- Artificial information	19
Table 19 -- Assessment and reporting for unwanted reflections -- Reality information	19
Table 20 -- Visual artefacts	20
Table 21 -- Legibility and readability	20
Table 22 -- Assessment and reporting for luminance contrast -- Artificial information	21
Table 23 -- Assessment and reporting for luminance contrast -- Reality information	22
Table 24 -- Legibility and readability	22
Table 25 -- Legibility of information coding	26
Table 26 -- Assessment and reporting for luminance coding -- Artificial information	26
Table 27 -- Legibility of information coding	27
Table 28 -- Assessment and reporting for colour coding -- Artificial information	27
Table 29 -- Legibility of information coding	28
Table 30 -- Legibility of graphics	28
Table 31 -- Fidelity	30
Table 32 -- Assessment and reporting for colour gamut and reference white -- Artificial information	32
Table 33 -- Assessment and reporting for colour gamut and reference white -- Reality information	33
Table 34 -- Fidelity	34
Table 35 -- Assessment and reporting for electro-optical transfer functions and grey scale -- Artificial information	35
Table 36 -- Assessment and reporting for electro-optical transfer functions and grey scale -- Reality information	35
Table 37 -- Fidelity	36
5.2 Emissive flat-panel LCD for indoor use -- Display laboratory method	38
5.2.1 Intended context of use	38
Table 38 -- Intended context of use -- Emissive flat-panel LCD	39
Table 39 -- Design viewing direction range	41
5.2.2 Information about the technology	46
Table 40 -- Basic physical attributes of emissive flat-panel LCD	46
5.2.3 Compliance assessment	46
Table 41 -- Viewing conditions	47
Table 42 -- Assessment and reporting for design viewing direction	48
Table 43 -- Viewing conditions	52
Table 44 -- Luminance	52

Table 45 -- Assessment and reporting for display luminance -- Artificial information and isotropic visual displays	53
Table 46 -- Assessment and reporting for display luminance -- Artificial information and anisotropic visual displays	53
Table 47 -- Assessment and reporting for display luminance -- Reality information and isotropic visual displays	53
Table 48 -- Assessment and reporting for display luminance -- Reality information and anisotropic visual displays	54
Table 49 -- Luminance	54
Table 50 -- Assessment and reporting for luminance and contrast adjustment	55
Table 51 -- Special physical environments	56
Table 52 -- Visual artefacts	57
Table 53 -- Assessment and reporting for luminance non-uniformity -- Artificial information -- Isotropic visual displays	58
Table 54 -- Assessment and reporting for luminance non-uniformity -- Artificial information -- Anisotropic visual displays	58
Table 55 -- Assessment and reporting for luminance non-uniformity -- Reality information -- Isotropic visual displays	59
Table 56 -- Assessment and reporting for luminance non-uniformity -- Reality information -- Anisotropic visual displays	59
Table 57 -- Visual artefacts	60
Table 58 -- Assessment and reporting for colour non-uniformity -- Artificial information -- Isotropic visual displays	60
Table 59 -- Assessment and reporting for colour non-uniformity -- Artificial information -- Anisotropic visual displays	61
Table 60 -- Assessment and reporting for colour non-uniformity -- Reality information -- Isotropic visual displays	62
Table 61 -- Assessment and reporting for colour non-uniformity -- Reality information -- Anisotropic visual displays	62
Table 62 -- Visual artefacts	63
Table 63 -- Pixel fault classification	64
Table 64 -- Visual artefacts	65
Table 65 -- Assessment and reporting for unwanted reflections -- Artificial information -- Isotropic visual displays	67
Table 66 -- Assessment and reporting for unwanted reflections -- Artificial information -- Anisotropic visual displays	67
Table 67 -- Assessment and reporting for unwanted reflections -- Reality information-- Isotropic visual displays	68

Table 68 -- Assessment and reporting for unwanted reflections -- Reality information -- Anisotropic visual displays	68
Table 69 -- Visual artefacts	69
Table 70 -- Legibility and readability	70
Table 71 -- Assessment and reporting for luminance contrast -- Artificial information -- Isotropic visual displays	71
Table 72 -- Assessment and reporting for luminance contrast -- Artificial information -- Anisotropic visual displays	71
Table 73 -- Assessment and reporting for luminance contrast -- Reality information -- Isotropic visual displays	72
Table 74 -- Assessment and reporting for luminance contrast -- Reality information -- Anisotropic visual displays	72
Table 75 -- Legibility and readability	73
Table 76 -- Legibility of information coding	75
Table 77 -- Assessment and reporting for luminance coding -- Artificial information -- Isotropic visual displays	76
Table 78 -- Assessment and reporting for luminance coding -- Artificial information -- Anisotropic visual displays	76
Table 79 -- Legibility of information coding	77
Table 80 -- Assessment and reporting for colour coding -- Artificial information	77
Table 81 -- Legibility of information coding	78
Table 82 -- Legibility of graphics	78
Table 83 -- Fidelity	80
Table 84 -- Assessment and reporting for colour gamut and reference white -- Artificial information	82
Table 85 -- Assessment and reporting for colour gamut and reference white -- Reality information	83
Table 86 -- Fidelity	84
Table 87 -- Assessment and reporting for electro-optical transfer functions and grey scale -- Artificial information -- Isotropic visual displays	85
Table 88 -- Assessment and reporting for electro-optical transfer functions and grey scale -- Artificial information -- Anisotropic visual displays	86
Table 89 -- Assessment and reporting for electro-optical transfer functions and grey scale -- Reality information -- Isotropic visual displays	86
Table 90 -- Assessment and reporting for electro-optical transfer functions and grey scale -- Reality information -- Anisotropic visual displays	87
Table 91 -- Fidelity	87
5.3 PDP for indoor use -- Display laboratory method	89
5.3.1 Intended context of use	89

Table 92 -- Intended context of use -- PDP	90
5.3.2 Information about the technology	92
Table 93 -- Basic physical attributes of PDP	92
5.3.3 Compliance assessment method	93
Table 94 -- Viewing conditions	93
Table 95 -- Assessment and reporting for design viewing direction	94
Table 96 -- Viewing conditions	94
Table 97 -- Luminance	95
Table 98 -- Assessment and reporting for display luminance -- Artificial information	95
Table 99 -- Assessment and reporting for display luminance -- Reality information	96
Table 100 -- Luminance	96
Table 101 -- Assessment and reporting for luminance and contrast adjustment	98
Table 102 -- Special physical environments	99
Table 103 -- Visual artefacts	99
Table 104 -- Assessment and reporting for luminance non-uniformity	100
Table 105 -- Visual artefacts	101
Table 106 -- Assessment and reporting for colour non-uniformity	101
Table 107 -- Visual artefacts	102
Table 108 -- Pixel fault classification	103
Table 109 -- Visual artefacts	104
Table 110 -- Assessment and reporting for unwanted reflections -- Artificial information	106
Table 111 -- Assessment and reporting for unwanted reflections -- Reality information	106
Table 112 -- Visual artefacts	107
Table 113 -- Legibility and readability	108
Table 114 -- Assessment and reporting for luminance contrast -- Artificial information	109
Table 115 -- Assessment and reporting for luminance contrast -- Reality information	109
Table 116 -- Legibility and readability	110
Table 117 -- Legibility of information coding	112
Table 118 -- Assessment and reporting for luminance coding -- Artificial information	113
Table 119 -- Legibility of information coding	113
Table 120 -- Assessment and reporting for colour coding -- Artificial information	114
Table 121 -- Legibility of information coding	114

Table 122 -- Legibility of graphics	115
Table 123 -- Fidelity	117
Table 124 -- Assessment and reporting for colour gamut and reference white -- Artificial information	119
Table 125 -- Assessment and reporting for colour gamut and reference white -- Reality information	120
Table 126 -- Fidelity	121
Table 127 -- Assessment and reporting for electro-optical transfer functions and grey scale -- Artificial information	122
Table 128 -- Assessment and reporting for electro-optical transfer functions and grey scale -- Reality information	123
Table 129 -- Fidelity	123
5.4 Front-screen projection visual displays with fixed resolution for indoor use -- Display laboratory method	125
5.4.1 Intended context of use	125
Table 130 -- Intended context of use -- Front-screen projection visual displays with fixed resolution	126
5.4.2 Information about the technology	129
Table 131 -- Basic physical attributes of front-screen projection visual displays with fixed resolution	129
5.4.3 Compliance assessment	129
Table 132 -- Viewing conditions	130
Table 133 -- Assessment and reporting for design viewing direction	130
Table 134 -- Viewing conditions	131
Table 135 -- Luminance	131
Table 136 -- Assessment and reporting for display luminance -- Artificial information	131
Table 137 -- Assessment and reporting for display luminance -- Reality information	132
Table 138 -- Luminance	132
Table 139 -- Assessment and reporting for luminance and contrast adjustment	134
Table 140 -- Special physical environments	135
Table 141 -- Visual artefacts	135
Table 142 -- Assessment and reporting for luminance non-uniformity	136
Table 143 -- Visual artefacts	136
Table 144 -- Assessment and reporting for colour non-uniformity	137
Table 145 -- Visual artefacts	138
Table 146 -- Pixel fault classification	139
Table 147 -- Visual artefacts	140

Table 148 -- Assessment and reporting for unwanted reflections -- Artificial information	142
Table 149 -- Assessment and reporting for unwanted reflections -- Reality information	143
Table 150 -- Visual artefacts	143
Table 151 -- Legibility and readability	144
Table 152 -- Assessment and reporting for luminance contrast	145
Table 153 -- Legibility and readability	145
Table 154 -- Legibility of information coding	149
Table 155 -- Assessment and reporting for luminance coding -- Artificial information	149
Table 156 -- Legibility of information coding	150
Table 157 -- Assessment and reporting for colour coding -- Artificial information	150
Table 158 -- Legibility of information coding	151
Table 159 -- Legibility of graphics	151
Table 160 -- Fidelity	153
Table 161 -- Assessment and reporting for colour gamut and reference white -- Artificial information	155
Table 162 -- Assessment and reporting for colour gamut and reference white -- Reality information	156
Table 163 -- Fidelity	157
Table 164 -- Assessment and reporting for electro-optical transfer functions and grey scale -- Artificial information	158
Table 165 -- Assessment and reporting for electro-optical transfer functions and grey scale -- Reality information	159
Table 166 -- Fidelity	159
5.5 Emissive, reflective or transfective LCD for handheld devices for indoor use -- Display laboratory method	161
5.5.1 Intended context of use	161
Table 167 -- Intended context of use -- Emissive, reflective or transfective LCD for handheld devices	162
5.5.2 Information about the technology	166
Table 168 -- Basic physical attributes of emissive, reflective or transfective handheld device LCD	166
5.5.3 Compliance assessment	166
Table 169 -- Sample compliance overview table	167
Table 170 -- Viewing conditions	168
Table 171 -- Assessment and reporting for design viewing direction	169
Table 172 -- Viewing conditions	171
Table 173 -- Luminance	171
Table 174 -- Assessment and reporting for display luminance	173

Table 175 -- Luminance	174
Table 176 -- Special physical environments	175
Table 177 -- Visual artefacts	176
Table 178 -- Assessment and reporting for luminance non-uniformity	177
Table 179 -- Visual artefacts	177
Table 180 -- Assessment and reporting for colour non-uniformity	178
Table 181 -- Visual artefacts	179
Table 182 -- Pixel fault classification	180
Table 183 -- Visual artefacts	181
Table 184 -- Legibility and readability	183
Table 185 -- Assessment and reporting for luminance contrast	184
Table 186 -- Legibility and readability	184
Table 187 -- Legibility of information coding	189
Table 188 -- Assessment and reporting for luminance coding	189
Table 189 -- Legibility of information coding	190
Table 190 -- Assessment and reporting for colour coding -- Artificial information	190
Table 191 -- Legibility of information coding	191
Table 192 -- Legibility of graphics	191
Table 193 -- Fidelity	193
Table 194 -- Assessment and reporting for colour gamut and reference white	195
Table 195 -- Fidelity	196
Table 196 -- Assessment and reporting for electro-optical transfer functions and grey scale	198
Table 197 -- Fidelity	199
6 Conformance	202
Annex A (informative) Overview of the ISO 9241 series	203
Annex B (normative) Boundaries for reproduction of natural colours	207
Annex C (normative) Compliance routes	211
Bibliography	215