ISO 12233:2017-01 (E)

Photography - Electronic still picture imaging - Resolution and spatial frequency responses

Contents

Page

Foreword v

Introduction vi

1 Scope 1

2 Normative references 1

3 Termsanddefinitions 1

4 Test conditions 5
4.1 Test chart illumination 5
4.2 Camera framing and lens focal length setting 5
4.3 Camera focusing 6
4.4 Camera settings 6
4.5 White balance 6
4.6 Luminance and colour measurements 6
4.7 Gamma correction 6

5 Visual resolution measurement 7
5.1 General 7
5.2 Test chart 7
5.2.1 General 7
5.2.2 Material 7
5.2.3 Size 7
5.2.4 Test patterns 7
5.2.5 Test pattern modulation 8
5.2.6 Positional tolerance 8
5.3 Rules of judgement for visual observation 8
5.3.1 Rules of judgement 8
5.3.2 An example of a correct visual judgement 9

6 Edge-based spatial frequency response (e-SFR) 9
6.1 General 9
6.2 Methodology 10
6.2.1 Selection of the edge region of interest (ROI) 10
6.2.2 Transformation into effective exposure 10
6.2.3 Estimation of the location of the edge 10
6.2.4 Formation of a super-sampled line spread function array 12
6.2.5 Computation of the e-SFR 13

7 Sine-based spatial frequency response (s-SFR) measurement 13

8 Presentation of results 14
8.1 General 14
8.2 Resolution 14
8.2.1 General 14
8.2.2 Basic presentation 14
8.2.3 Representative presentation 14
8.3 Spatial frequency response (SFR) 15
8.3.1 General 15

8.3.2 Spatial frequency response 15
8.3.3 Report of resolution value derived from the s-SFR 16

Annex A (informative) CIPA resolution test chart 17

Annex B (informative) Visual resolution measurement software 23

Annex C (informative) Low contrast edge SFR test chart with OECF patches 28

Annex D (normative) Edge spatial frequency response (e-SFR) algorithm 30

Annex E (normative) Sine wave star test chart 33

Annex F (normative) Sine wave spatial frequency response (s-SFR) analysis algorithm 35

Annex G (informative)Colour-filteredresolutionmeasurements 39

Annex H (informative) Units and summary metrics 41

Annex I (informative)OriginaltestchartdefinedinISO12233:2000 44

Bibliography 48