

ISO/IEC 23002-7:2024-10 (E)

Information technology - MPEG video technologies - Part 7: Versatile supplemental enhancement information messages for coded video bitstreams

Contents

	Page
Foreword.....	vi
Introduction.....	vii
1 Scope.....	1
2 Normative references.....	1
3 Terms and definitions.....	2
4 Abbreviated terms.....	8
5 Conventions.....	9
5.1 General.....	9
5.2 Arithmetic operators.....	9
5.3 Logical operators.....	10
5.4 Relational operators.....	10
5.5 Bit-wise operators.....	10
5.6 Assignment operators.....	11
5.7 Range notation.....	11
5.8 Mathematical functions.....	11
5.9 Order of operation precedence.....	13
5.10 Variables, syntax elements and tables.....	13
5.11 Text description of logical operations.....	14
5.12 Processes.....	16
6 Syntax and semantics.....	16
6.1 General.....	16
6.2 Method of specifying syntax in tabular form.....	17
6.3 Specification of syntax functions and descriptors.....	18
7 Video usability information parameters.....	19
7.1 General.....	19
7.2 VUI parameters syntax.....	19
7.3 VUI parameters semantics.....	20
8 SEI messages.....	27
8.1 General.....	27
8.2 Filler payload SEI message.....	28
8.2.1 Filler payload SEI message syntax.....	28
8.2.2 Filler payload SEI message semantics.....	28
8.3 User data registered by Rec. ITU-T T.35 SEI message.....	29
8.3.1 User data registered by Rec. ITU-T T.35 SEI message syntax.....	29
8.3.2 User data registered by Rec. ITU-T T.35 SEI message semantics.....	29
8.4 User data unregistered SEI message.....	29
8.4.1 User data unregistered SEI message syntax.....	29
8.4.2 User data unregistered SEI message semantics.....	29
8.5 Film grain characteristics SEI message.....	30
8.5.1 Film grain characteristics SEI message syntax.....	30
8.5.2 Film grain characteristics SEI message semantics.....	31
8.6 Frame packing arrangement SEI message.....	38
8.6.1 Frame packing arrangement SEI message syntax.....	38
8.6.2 Frame packing arrangement SEI message semantics.....	39
8.7 Parameter sets inclusion indication SEI message.....	46
8.7.1 Parameter sets inclusion indication SEI message syntax.....	46
8.7.2 Parameter sets inclusion indication SEI message semantics.....	46

8.8	Decoded picture hash SEI message	47
8.8.1	Decoded picture hash SEI message syntax	47
8.8.2	Decoded picture hash SEI message semantics	47
8.9	Mastering display colour volume SEI message	49
8.9.1	Mastering display colour volume SEI message syntax	49
8.9.2	Mastering display colour volume SEI message semantics	49
8.10	Content light level information SEI message	51
8.10.1	Content light level information SEI message syntax	51
8.10.2	Content light level information SEI message semantics	51
8.11	Dependent random access point indication SEI message	52
8.11.1	Dependent random access point indication SEI message syntax	52
8.11.2	Dependent random access point indication SEI message semantics	52
8.12	Alternative transfer characteristics information SEI message	53
8.12.1	Alternative transfer characteristics information SEI message syntax	53
8.12.2	Alternative transfer characteristics SEI message semantics	53
8.13	Ambient viewing environment SEI message	53
8.13.1	Ambient viewing environment SEI message syntax	53
8.13.2	Ambient viewing environment SEI message semantics	53
8.14	Content colour volume SEI message	54
8.14.1	Content colour volume SEI message syntax	54
8.14.2	Content colour volume SEI message semantics	54
8.15	Omnidirectional video specific SEI messages	57
8.15.1	Sample location remapping process	57
8.15.2	Equirectangular projection SEI message	67
8.15.3	Generalized cubemap projection SEI message	70
8.15.4	Sphere rotation SEI message	76
8.15.5	Region-wise packing SEI message	77
8.15.6	Omnidirectional viewport SEI message	84
8.16	Frame-field information SEI message	86
8.16.1	Frame-field information SEI message syntax	86
8.16.2	Frame-field information SEI message semantics	86
8.17	Sample aspect ratio information SEI message	89
8.17.1	Sample aspect ratio information SEI message syntax	89
8.17.2	Sample aspect ratio information SEI message semantics	89
8.18	Annotated regions SEI message	90
8.18.1	Annotated regions SEI message syntax	90
8.18.2	Annotated regions SEI message semantics	91
8.19	Scalability dimension information SEI message	94
8.19.1	Scalability dimension information SEI message syntax	94
8.19.2	Scalability dimension information SEI message semantics	95
8.20	Multiview acquisition information SEI message	96
8.20.1	Multiview acquisition information SEI message syntax	96
8.20.2	Multiview acquisition information SEI message semantics	97
8.21	Multiview view position SEI message	101
8.21.1	Multiview view position SEI message syntax	101
8.21.2	Multiview view position SEI message semantics	101
8.22	Depth representation information SEI message	102
8.22.1	Depth representation information SEI message syntax	102
8.22.2	Depth representation information SEI message semantics	102
8.23	Alpha channel information SEI message	106
8.23.1	Alpha channel information SEI message syntax	106
8.23.2	Alpha channel information SEI message semantics	106
8.24	Extended DRAP indication SEI message	109
8.24.1	Extended DRAP indication SEI message syntax	109
8.24.2	Extended DRAP indication SEI message semantics	109
8.25	Display orientation SEI message	110
8.25.1	Display orientation SEI message syntax	110
8.25.2	Display orientation SEI message semantics	111
8.26	Colour transform information SEI message	112
8.26.1	Colour transform information SEI message syntax	112
8.26.2	Colour transform information SEI message semantics	112
8.27	Shutter interval information SEI message	116
8.27.1	Shutter interval information SEI message syntax	116
8.27.2	Shutter interval information SEI message semantics	116

8.28	Neural-network post-filter SEI messages	117
8.28.1	General post-processing filtering process using NNPFs	117
8.28.2	Neural-network post-filter characteristics SEI message	118
8.28.3	Neural-network post-filter activation SEI message	141
8.29	Phase indication SEI message	143
8.29.1	Phase indication SEI message syntax	143
8.29.2	Phase indication SEI message semantics	143
8.30	Reserved SEI message	145
8.30.1	Reserved SEI message syntax	145
8.30.2	Reserved SEI message semantics	145
9	Parsing process for k-th order Exp-Golomb codes	145
9.1	General	145
9.2	Mapping process for signed Exp-Golomb codes	146
	Bibliography	148