

ISO/IEC 23090-12:2023-08 (E)

Information technology - Coded representation of immersive media - Part 12: MPEG immersive video

Contents		Page
Foreword		v
Introduction		vi
1	Scope	1
2	Normative reference	1
3	Terms and definitions	1
4	Abbreviated terms	3
5	Conventions	3
6	Overall V3C characteristics, decoding operations, and post-decoding processes	4
7	Bitstream format, partitioning, and scanning processes	4
7.1	General	4
7.2	V3C bitstream formats	4
7.3	NAL bitstream formats	4
7.4	Partitioning of atlas frames into tiles	4
7.5	Tile partition scanning processes	4
7.6	Mapping of views to V3C components	4
7.7	Sources and outputs	5
8	Syntax and semantics	6
8.1	Method of specifying syntax in tabular form	6
8.2	Specification of syntax functions and descriptors	6
8.3	Syntax in tabular form	6
8.3.1	General syntax	6
8.3.2	V3C unit syntax	6
8.3.3	Byte alignment syntax	6
8.3.4	V3C parameter set syntax	6
8.3.5	NAL unit syntax	6
8.3.6	Raw byte sequence payloads, trailing bits, and byte alignment syntax	7
8.3.7	Atlas tile data unit syntax	7
8.3.8	Supplemental enhancement information message syntax	7
8.3.9	V3C MIV extension syntax in tabular form	7
8.4	Semantics	12
8.4.1	General semantics	12
8.4.2	V3C MIV extension semantics	12
8.4.3	Order of V3C units and association to coded information	19
9	Decoding process	20
9.1	General decoding process	20
9.2	Atlas data decoding process	20
9.2.1	General atlas data decoding process	20
9.2.2	Decoding process for a coded atlas frame	20
9.2.3	Atlas NAL unit decoding process	20
9.2.4	Atlas tile header decoding process	20
9.2.5	Decoding process for patch data units	20

9.2.6	Decoding process of the block to patch map	21
9.2.7	Conversion of tile level patch information to atlas level patch information	21
9.3	Occupancy video decoding process	22
9.4	Geometry video decoding process	22
9.5	Attribute video decoding process	22
9.6	Packed video decoding process	22
9.7	Common atlas data decoding process	22
9.7.1	General common atlas data decoding process	22
9.7.2	Decoding process for a coded common atlas frame	23
9.7.3	Common atlas NAL unit decoding process	23
9.7.4	Common atlas frame order count derivation process	23
9.7.5	Common atlas frame MIV extension decoding process	23
9.8	Sub-bitstream extraction process	28
9.8.1	General	28
9.8.2	V3C unit extraction	28
9.8.3	NAL unit extraction process	28
9.8.4	Group extraction process	28
10	Pre-reconstruction process	28
11	Reconstruction process	28
12	Post-reconstruction process	28
13	Adaptation process	28
14	Parsing process	28
Annex A (normative)	Profiles,tiers,andlevels	29
Annex B (informative)	Post-decoding conversion to nominal video formats	32
Annex C (informative)	V3C sample stream format	34
Annex D (normative)	NAL sample stream format	35
Annex E (normative)	Atlas hypothetical reference decoder	36
Annex F (normative)	Supplemental enhancement information	37
Annex G (informative)	Volumetric usability information	53
Annex H (Informative)	Overview of the rendering processes	54
Bibliography	71