

ISO/IEC 23090-12:2025-09 (E)

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

Contents		Page
Foreword		v
Introduction		vi
1	Scope	1
2	Normative references	1
3	Terms and definitions	1
4	Abbreviated terms	4
5	Conventions	4
6	Overall V3C characteristics, decoding operations, and post-decoding processes	4
7	Bitstream format, partitioning, and scanning processes	5
7.1	General	5
7.2	V3C bitstream formats	5
7.3	NAL bitstream formats	5
7.4	Partitioning of atlas frames into tiles	5
7.5	Mapping of views to V3C components	5
7.6	Sources and outputs	6
8	Syntax and semantics	6
8.1	Method of specifying syntax in tabular form	6
8.2	Specification of syntax functions and descriptors	7
8.3	Syntax in tabular form	7
8.3.1	General syntax	7
8.3.2	V3C unit syntax	8
8.3.3	Byte alignment syntax	9
8.3.4	V3C parameter set syntax	9
8.3.5	NAL unit syntax	9
8.3.6	Raw byte sequence payloads, trailing bits, and byte alignment syntax	9
8.3.7	Atlas tile data unit syntax	9
8.3.8	Supplemental enhancement information message syntax	9
8.3.9	V3C MIV extension syntax in tabular form	9
8.4	Semantics	19
8.4.1	General semantics	19
8.4.2	V3C MIV extension semantics	19
8.4.3	Order of V3C units and association to coded information	35
9	Decoding process	35
9.1	General decoding process	35
9.2	Atlas data decoding process	35
9.2.1	General atlas data decoding process	35
9.2.2	Decoding process for a coded atlas frame	36
9.2.3	Atlas NAL unit decoding process	36
9.2.4	Atlas tile header decoding process	36
9.2.5	Decoding process for patch data units	36
9.2.6	Decoding process of the block to patch map	37

9.2.7	Conversion of tile level patch information to atlas level patch information	37
9.3	Occupancy video decoding process	38
9.4	Geometry video decoding process	38
9.5	Attribute video decoding process	39
9.6	Packed video decoding process	39
9.7	Common atlas data decoding process	39
9.7.1	General common atlas data decoding process	39
9.7.2	Decoding process for a coded common atlas frame	39
9.7.3	Common atlas NAL unit decoding process	39
9.7.4	Common atlas frame order count derivation process	39
9.7.5	Common atlas frame MIV extension decoding process	40
9.8	Sub-bitstream extraction process	48
9.8.1	General	48
9.8.2	V3C unit extraction	48
9.8.3	NAL unit extraction process	48
9.8.4	Group extraction process	49
10	Pre-reconstruction process	49
11	Reconstruction process	49
12	Post-reconstruction process	49
13	Adaptation process	49
14	Parsing process	49
Annex A (normative) Profiles, tiers, and levels		50
Annex B (informative) Post-decoding conversion to nominal video formats		64
Annex C (normative) Supplemental enhancement information		66
Annex D (normative) Volumetric usability information		87
Annex E (informative) Overview of the rendering processes		88
Bibliography		106