|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| JP3 001 |  |  |  | Ge | There are lots of freedom for the syntax element values and the combinations so that it is difficult to ensure the decoder complexity. | Define the profile(s) and the level(s) to constraint the syntax values and the combinations. | Accepted. There is currently a CE working to develop profiles and levels recommendations and conformance points. | i |
| JP2 002 |  |  |  | Ge | PCC specification should ensure the decoded point cloud quality for the interoperability. | Define the conformance point for the reconstructed point cloud. | Accepted. The requested conformance point will be part of reconstruction profile. | i |
| JP1 003 |  |  |  | Ed | There remain editor’s notes. Those have to be resolved. |  | Accepted. Editors group is working on resolving the outstanding editor's notes. | i |
| FI 004 |  | 03.07 |  | ge | The follow terms require a definition:  bitstream (cl. 6) V-PCC unit (Fig. 7-1) V-PCC unit header (Fig. 7-1) V-PCC unit payload (Fig. 7-1) Sequence Parameter Set (Fig. 7-1) Patch Sequence Data (Fig. 7-1) Geometry/Attribute Parameter Set (Fig. 7-1) Patch data (Fig. 7-1) Video Data (Fig. 7-1) patch / frame / sequence (Fig. 7-1) params / parameter set (Fig. 7.1) patch frame (cl. 7.3.25) delta patch (cl. 7.3.32) layer (cl. 7.3.3) near / far layer (cl. 9.4) PCM encoded points (in context of raw points) inter / intra / PCM (in context of patch prediction) V-PCC access unit | Provide the respective definitions in Cl. 3 | Accepted. Missing definitions will be added. | i |
| FI 005 |  | 06.01 |  | ge | No constraints mentioned or referred to in:  “There are constraints imposed on the decoding order (and contents) of the V-PCC units.” | Describe constraints or provide reference to where such constraints are described. | Accepted. These constraints can be found in subsequent sections. | c |
| FI 006 |  | 06.01 |  | ed | Provide reference in sentence: “This sequence is ordered in decoding order.” | Change sentence to: “This sequence is ordered in decoding order, as described in clause 8.1” | Accepted. The ordering can be found in subsequent sections. | c |
| FI 007 |  | 07.03.1 | Fig 7-1 | ge | - No description of the color code. - Duplication of “Sequence Parameter Set” | - Provide color code description. - Rename or motivate duplication. | Accepted. Figure will be revised. | i |
| 008 | 7 | 07.03.11 |  | te | profile\_idc, tier\_flag, level\_idc are missing in Attribute Parameter Set. | profile\_idc, tier\_flag, level\_idc should be specified in Attribute Parameter Set. | Rejected. V-PCC Profile, tier and level information is specified in the sequence parameter set.  The profile tier and level of the video data already exist in the video information | c |
| 009 | 2 | 07.03.11 |  | te | The number of Attribute Patch Parameter Set is unclear in Attribute Parameter Set. | Specify the number of Attribute Patch Parameter Set or consider grouping of the Attribute Patch Parameter Sets. | Accepted. This is already addressed in the current text. | c |
| FI 010 |  | 07.03.14 |  | ed | **psdFrameCount** seems to refer to layers, not frames. | Rename to **psdLayerCount**, if the **psdFrameCount** really refers to an actual frame count provide more meaningful description. | Accepted. This variable has been removed from the V-PCC specification. | c |
| US 011 |  | 07.03.17 |  | te | The term "auxiliary information data unit" is vague and does not clearly identify the use of such information. | Consider renaming auxiliary\_information\_data\_unit to vpcc\_patch\_data\_unit. All mentions of "auxiliary" should also be appropriately renamed. | Accepted. This variable has been removed from the V-PCC specification. | c |
| US 012 |  | 07.03.17 |  | te | In the current specification, achieving random access is not as easy or flexible, unless patch inter prediction for auxiliary information is disallowed. Moreover, when coding the auxiliary information data unit, hierarchical structures are not permitted and the temporal prediction of patches is limited to using the previous auxiliary information data unit, only. | 1) Allow signaling the type of the auxiliary information/V-PCC patch data unit, i.e. intra (I) only or inter (e.g. P) predicted patch data frame.  2) Introduce an indexing mechanism for each auxiliary information data unit, similar to the picture order count in video codecs, which would permit identifying each data unit and deriving its output order. Consider whether such an index may be used to construct the Auxiliary information Decoded reference Buffer (ADB) and the reference list(s) for performing inter prediction of patches. | Accepted. Both proposals are already present in latest specification text. | c |
| US 013 |  | 07.03.17 |  | te | Arithmetically coded symbols (ae(v)) and non-arithmetically coded symbols (se(v)) are interleaved. | Consider arithmetically coding syntax elements that are currently coded as se(v), or specify proper termination for arithmetically coded syntax elements that precede syntax elements coded as se(v), or consider coding all elements using exponential golomb methods (e.g. se(v) or a combination of ue(v) + u(1) for magnitude + sign). | Rejected: Arithmetic coding has been removed from the V-PCC specification. | c |
| FI 014 |  | 07.03.29 |  | ed | patch\_frame\_data\_unit( frmIdx ) is defined three times. | Select one definition. | Accepted. Resolved in current version | c |
| FI 015 |  | 07.03.3 |  | te | pcm\_separate\_video\_data contains only vpcc\_pcm\_video\_flag to signal if associated video data is PCM coded only.  It is not clear what the benefit of this information is, as this can be derived from the video codec itself.  For reconstruction, PCM coded information is available on a patch-level as patch\_mode. | Remove syntax elements pcm\_separate\_video\_data and vpcc\_pcm\_video\_flag | Rejected. pcm\_separate\_video\_data could be encoded lossy, or attribute/geometry video containing normal patches could be encoded with a lossless codec | c |
| FI 016 |  | 07.03.3 |  | te | V-PCC unit header contains vpcc\_sequence\_parameter\_set\_id for each V-PCC Unit payload, which allows different payloads types to refer to different vpcc\_sequence\_parameter\_set\_id within the same frame. Such flexibility is clearly undesired. | Define that all vpcc\_unit\_headers, mapped to the same V-PCC frame, shall share the same vpcc\_sequence\_parameter\_set\_id. | Accepted. Bitstream conformance restrictions will be added | i |
| 017 | 9 | 07.03.3 |  | te | It is impossible to identify whether a Geometry/Attribute Video Data is the additional points which are separately stored. | The V-PCC Bitstream id of the additional points should be specified in Sequence parameter Set. | Accepted. Already present in latest version of specification | c |
| FI 018 |  | 07.03.31 |  | te | The functionality to address six projection direction, introduced by combining **pdu\_normal\_axis** and **pdu\_projection\_mode**, is certainly useful. However, the current implementation is cumbersome and may lead to confusion. By combining these two syntax elements into a single element, the syntax can be simplified at a minimal cost.  Such combined syntax element makes sure that the values for **pdu\_3d\_shift\_tangent\_axis**, **pdu\_3d\_shift\_bitangent\_axis**, and **pdu\_3d\_shift\_normal\_axis**, are set explicitly. | combine **pdu\_normal\_axis** and **pdu\_projection\_mode** into new syntax element **pdu\_projection\_axis** with a range from 0..5, representing the six sides of a bounding box.  For each value of **pdu\_projection\_axis**, the respective values for **pdu\_3d\_shift\_tangent\_axis**, **pdu\_3d\_shift\_bitangent\_axis**, and **pdu\_3d\_shift\_normal\_axis**, shall be set explicitly. | Accepted. Already present in latest version of specification (pdu\_projection\_plane) | c |
| FI 019 |  | 07.03.32 |  | te | The functionality to address six projection direction, introduced by combining **dpdu\_normal\_axis** and **dpdu\_projection\_mode**, is certainly useful. However, the current implementation is cumbersome and may lead to confusion. By combining these two syntax elements into a single element, the syntax can be simplified at a minimal cost.  Such combined syntax element makes sure that the values for **dpdu\_3d\_shift\_tangent\_axis**, **dpdu\_3d\_shift\_bitangent\_axis**, and **dpdu\_3d\_shift\_normal\_axis**, are set explicitly. | combine **dpdu\_normal\_axis** and **dpdu\_projection\_mode** into new syntax element **dpdu\_projection\_axis** with a range from 0..5  For each value of **dpdu\_projection\_axis**, the respective values for pdu\_3d\_shift\_tangent\_axis, **dpdu\_3d\_shift\_bitangent\_axis**, and **dpdu\_3d\_shift\_normal\_axis**, shall be set explicitly.  Alternatively, remove delta patch coding as proposed in comment above | Accepted. Already present in latest version of specification (pdu\_projection\_plane) | c |
| FI 020 |  | 07.03.32 |  | te | The introduction of delta patch functionality brings a significant increase in syntax and specification text complexity. At the same time, the provided gain in terms of such functionality is questionable. In particular MPEG CE2.14 (m43597) reported only 0.7% savings. | In light of the syntax complexity introduced by delta patch signalling, it is proposed to remove this aspect from the current CD and reconsider it at a later stage when more details on its benefits are available.  As it stands now, we do not consider 0.7% bitrate savings as sufficient to motivate such a complex addition to the specification. | Rejected. The signalling syntax has been significantly simplified and gains have been improved. | c |
| FI 021 |  | 07.03.34 |  | te | Flags signalled as ae(v):  plr\_mode\_interpolate\_flag  plr\_mode\_filling\_flag | change descriptors to u(1) | Accepted. Corrected in latest specifications | c |
| US 022 |  | 07.03.4 |  | te | In the current specification, the geometry and attribute patch parameter sets seem to be associated with only one patch\_id. This appears to be wasteful and does not seem to permit the reuse of patch parameter sets for multiple patches. Furthermore, if a patch changes index in time, then a new patch parameter set would have to be signalled. This appears counter-intuitive. | Usage and syntax of the geometry and attribute patch parameter sets should be clarified. Consider whether associating one or more patches with particular parameter sets may be more appropriate than associating the parameter sets with a single patch. | Accepted. Corrected in latest specifications | c |
| FI 023 |  | 07.03.5 |  | te | video\_data\_unit() is not defined. It is not clear what it is composed of. | Clearly define the syntax of video\_data\_unit() | Accepted. Definition will be added. | i |
| 024 | 4 | 07.03.5 |  | te | codec\_id in Sequence Parameter Set is missing. | codec\_id should be specified in Sequence Parameter Set. | Accepted. Corrected in latest specifications. Requires SEI message | i |
| 025 | 3 | 07.03.5 |  | te | enhanced\_depth\_code\_enabled\_flag is not sufficient to indicate whether the V-PCC Bitstream is compressed in lossless or lossy mode. | Another flag to specify the compress mode should be introduced. | Rejected. EDD is just a coding tool and not related to lossless coding. | c |
| US 026 |  | 07.03.5 |  | te | Although the current specification claims support for more than two geometry and attribute layers (i.e. up to 16 layers), it does not provide any information about their relationship and how these should be identified. It also does not provide a mechanism for distinguishing when such layers are coded together, in a single video stream, or independently. | The text should clearly identify the layers, their coding process, as well as their relationships, if any. | Accepted. Corrected in latest specifications. | c |
| FI 027 |  | 07.03.6 |  | te | It should be noted that several elements in the sequence parameter set shall not be updated frequently, in particular:  - sps\_frame\_width - sps\_frame\_height - sps\_layer\_count\_minus1 - sps\_multiple\_layer\_streams\_present\_flag - sps\_layer\_absolute\_coding\_enabled\_flag - sps\_patch\_sequence\_orientation\_enabled\_flag - sps\_patch\_inter\_prediction\_enabled\_flag - sps\_pixel\_deinterleaving\_flag - sps\_point\_local\_reconstruction\_enabled\_flag - sps\_remove\_duplicate\_point\_enabled\_flag  Otherwise the initiating decoding and rendering instances becomes too complex. | Define restrictions on the update frequency of: - sps\_frame\_width - sps\_frame\_height - sps\_layer\_count\_minus1 - sps\_multiple\_layer\_streams\_present\_flag - sps\_layer\_absolute\_coding\_enabled\_flag - sps\_patch\_sequence\_orientation\_enabled\_flag - sps\_patch\_inter\_prediction\_enabled\_flag - sps\_pixel\_deinterleaving\_flag - sps\_point\_local\_reconstruction\_enabled\_flag - sps\_remove\_duplicate\_point\_enabled\_flag  and derived syntax elements. | Accepted. There should be only one SPS for a sequence. | c |
| FI 028 |  | 07.03.6 |  | te | It should be noted that several elements in the sequence parameter set shall not be updated frequently, in particular:  - occupancy\_parameter\_set - geometry\_parameter\_set - attribute\_parameter\_set  Otherwise the bitstream becomes too complex. | Define restrictions on the update frequency of: - occupancy\_parameter\_set - geometry\_parameter\_set - attribute\_parameter\_set | Rejected. The problem has been handled differently in the current version of the specification text. | c |
| FI 029 |  | 07.03.6 |  | ed | Confusion caused by different naming, i.e. **sps\_frame\_width**, **sps\_frame\_height** do not necessarily refer to the video frame width/height but the nominal content height/width (see Clause 7.4.6) | Rename to **sps\_nominal\_width** and **sps\_nominal\_height** | Accepted. Will be corrected in next specifications. | i |
| FI 030 |  | 07.03.6 |  | te | Can there be multiple VPCC\_SPS data units with the same sps\_sequence\_parameter\_set\_id in the same V-PCC bitstream? One possible cause could be concatenation of two V-PCC bitstreams. | Specify what happens if a new value is defined, e.g. new value overwrites older value. | Accepted. Clarify that only one SPS shall be active. If a new SPS is present, it shall become active. | i |
| FI 031 |  | 07.03.6 |  | te | Sequence\_parameter\_set() contains geometry, occupancy and attribute parameter sets as well. Does it mean that a new sequence\_parameter\_set() with a different **vpcc\_sequence\_parameter\_set\_id** must be generated to update any of these parameter sets, or can an sequence\_parameter\_set\_update()utilize the existing **vpcc\_sequence\_parameter\_set\_id** for above-mentioned purpose? | Clearly define the use cases for using same or different **vpcc\_sequence\_parameter\_set\_ids** in sequence\_parameter\_set() | Accepted. One use case for multiple  **vpcc\_sequence\_parameter\_set\_ids** is out of band signalling of SPS  It should be clarified that a SPS update structure is undesirable for existing sequence. | i |
| FI 032 |  | 07.03.6 & 8.2 |  | te | There exist two different layer coding approaches for depth. However, following the evaluation of the two different solutions, it is not clear that delta coding brings a significant benefit (MPEG CE2.8, in particular m43670) over absolute coding.  Selecting only one geometry layer coding approach would simplify the syntax and spec text significantly, thus facilitating better understanding and deployment. | It is proposed to remove the delta layer coding support, thus simplifying the syntax and codec description significantly.  The following syntax elements can be removed: - sps\_layer\_absolute\_coding\_enabled\_flag  - sps\_layer\_predictor\_index\_diff  Clause 8.2 can be simplified. | Rejected. The impact of differential coding on layers coded in independent streams is significant. | c |
| US 033 |  | 07.03.7 |  | te | The need of the frame parameter sets is unclear. | Clarify the usage of frame parameter set or consider its removal. It may be preferable to modify the current syntax and define a new V-PCC unit type that consists of a patch information sub-stream. Such sub-stream would resemble a video sub-stream and may contain frame units that are associated with their own frame parameter sets. In this scenario, the frame parameter sets defined in the current specification should be moved into this information layer. | Accepted. Corrected in latest specifications. | c |
| 034 | 5 | 07.03.8 |  | te | profile\_idc, tier\_flag, level\_idc are missing in Occupancy Parameter Set. | profile\_idc, tier\_flag, level\_idc should be specified in Occupancy Parameter Set. | Rejected. V-PCC Profile, tier and level information is specified in the sequence parameter set.  The profile tier and level of the video data already exist in the video information | c |
| 035 | 6 | 07.03.9 |  | te | profile\_idc, tier\_flag, level\_idc are missing in Geometry Parameter Set. | profile\_idc, tier\_flag, level\_idc should be specified in Geometry Parameter Set. | Rejected. V-PCC Profile, tier and level information is specified in the sequence parameter set.  The profile tier and level of the video data already exist in the video information | c |
| 036 | 1 | 07.03.9 |  | te | The number of Geometry Patch Parameter Set is unclear in Geometry Parameter Set. | Specify the number of Geometry Patch Parameter Set or consider grouping of the Geometry Patch Parameter Sets. | Accepted. This is already addressed in the current text. | c |
| US 037 |  | 07.03/7.3.4 |  | te | The current specification defines 6 different types of parameter sets in the V-PCC unit types. These parameter sets are not clearly identified and referenced using parameter set ids. | Associate each parameter set type with its own id, e.g. sps\_parameter\_set\_id, aps\_parameter\_set\_id, gps\_parameter\_set\_id, occ\_parameter\_set\_id, etc, therefore providing a clear mechanism of how to address/reference different parameter sets. | Accepted. This is already addressed in the current text. | c |
| FI 038 |  | 07.04.10 |  | te | What is the intended mapping of gps\_pcm\_geometry\_codec\_id  Is there a need to have a separate signal for pcm codec? Couldn’t this be signalled as part of the geometry\_codec (or profile) | Remove. Signal as part of gps\_geometry\_codec\_id | Accepted. The mapping will be provided in SEI message.  There is a need for a separate signal, e.g. 8Bit for lossy, 10 Bit for lossless | i |
| FI 039 |  | 07.04.10 |  | te | What is the intended mapping of gps\_geometry\_codec\_id | provide video coding mapping information | Accepted. The mapping will be provided in SEI message. | i |
| FI 040 |  | 07.04.11 | Tab 7-2 | te | Point shape definitions not provided | provide definitions for circle, square, diamond.  Consider additional shapes, e.g. splat/oval, rectangles, | Accepted. Definitions will be provided in next version (SEI message) | i |
| FI 041 |  | 07.04.12 |  | te | As attributes are coded using standard video codec, how to deal with **aps\_attribute\_dimension\_minus1 > 2** | Limit **aps\_attribute\_dimension\_minus1** to range 0..2. Provide explanation how to pack higher dimension attributes can be packed in several instances. Provide definition on how several attribute instances shall be arranged. | Accepted. This is already addressed in the current text. | c |
| FI 042 |  | 07.04.12 |  | te | What is the intended mapping of aps\_pcm\_attribute\_codec\_id  Is there a need to have a separate signal for pcm codec? Couldn’t this be signalled as part of the attribute\_codec (or profile) | Remove. Signal as part of aps\_attribute\_codec\_id | Accepted. The mapping will be provided in SEI message.  There is a need for a separate signal, e.g. 8Bit for lossy, 10 Bit for lossless | i |
| FI 043 |  | 07.04.12 |  | te | What is the intended mapping of aps\_attribute\_codec\_id | provide video coding mapping information | Accepted. The mapping will be provided in SEI message. | i |
| FI 044 |  | 07.04.12 | Tab 7-3 | te | V-PCC attribute types not defined | Define all attribute types in Tab. 7-3 | Accepted. Definitions will be provided in next version of the specifications | i |
| FI 045 |  | 07.04.13 |  | te | Elements asp\_attribute\_smoothing\_neighbour\_count and asp\_attribute\_smoothing\_radius2\_boundary\_detection have a large value range which may affect reconstruction performance. | Limit ranges, possibly based on profiles. | Accepted. Ranges and limits will be part of reconstruction profiles and levels | i |
| FI 046 |  | 07.04.17 |  | ed | Is gfps\_override\_geometry\_params\_flag only valid for the current frame or is overriding applied to following frames as well? | If it only applies to the current frame, change text to: “may be overridden or not with new parameters signalled only for the relevant frame” | Accepted. add text “Overwriting will only be applied to the current frame and not carried over to successive frames.” | i |
| FI 047 |  | 07.04.18 |  | ed | is afps\_override\_attribute\_params\_flag[ i ] only valid for the current frame or is overriding applied to following frames as well? | If it only applies to the current frame, change text to: “may be overridden or not with new parameters signalled only for the relevant frame” | Accepted. add text “Overwriting will only be applied to the current frame and not carried over to successive frames.” | i |
| FI 048 |  | 07.04.29 | Tab. 7-6 | ed | Missing definitions | Define Non-predicted Patch mode and PCM Point Patch mode. | Accepted. Definitions will be provided in next version of the specifications | i |
| FI 049 |  | 07.04.29 | Tab. 7-7 | ed | Missing definitions | Define Patch skip mode, non-predicted patch mode, inter predicted patch mode, and PCM point patch mode. | Accepted. Definitions will be provided in next version of the specifications | i |
| FI 050 |  | 07.04.31 |  | te | pdu\_projection\_mode mentions near and far projection planes. The terms “near” and “far” are not defined. | Define “near” and “far” projection plane, i.e. in respect to what?  Explain why different layers are needed, i.e. to cover points that may be occluded from one projection direction. | Accepted. Will be clarified in next version of specifications | i |
| FI 051 |  | 07.04.32 |  | te | dpdu\_projection\_mode mentions near and far projection planes. The terms “near” and “far” are not defined. | Define “near” and “far” projection plane, i.e. in respect to what?  Explain why different layers are needed, i.e. to cover points that may be occluded from one projection direction. | Accepted. Will be clarified in next version of specifications | i |
| FI 052 |  | 07.04.4 |  | ed | PCM is a confusing acronym in this context.  Alternative terms could be “raw points” or “independent points”. | Select an alternative term for “PCM coded points” and “PCM points” that reflects the nature of such points better. | Accepted. Will be clarified in next version of specifications | i |
| FI 053 |  | 07.04.4 |  | te | Confusing wording for vpcc\_pcm\_video\_flag:  “vpcc\_pcm\_video\_flag equal to 0 indicates that the associated geometry or attribute video data unit may contain non PCM coded points” | Remove “non” to make it clearer that non PCM coded points would be the norm: “vpcc\_pcm\_video\_flag equal to 0 indicates that the associated geometry or attribute video data unit may contain PCM coded points”  Alternatively, remove vpcc\_pcm\_video\_flag, as proposed as FI comment on 7.3.3 | Accepted. Will be clarified in next version of specifications | i |
| FI 054 |  | 07.04.6 |  | ed | sps\_layer\_absolute\_coding\_enabled\_flag has only the defined values 2 and 0, as a flag 1 and 0 seem more reasonable. | Change text to:  “**sps\_layer\_absolute\_coding\_enabled\_flag**[ i ] equal to 1 indicates …”  Alternatively, remove delta depth functionality as proposed in FI comment on 7.3.6 | Accepted. | c |
| FI 055 |  | 07.04.6 |  | te | The text mentions: “Such scaling is outside the scope of this Specification.” However, clear scaling definitions are required to achieve conformance between different implementations. | Provide clear definitions on width, height and frame rate scaling. | Accepted. Conformance point A does not require scaling to nominal resolution.  Conformance point B will require exact definitions for all required transformations | i |
| FI 056 |  | 07.04.9 |  | te | ops\_occupancy\_packing\_block\_size has no limitations | Provide restrictions / ranges for ops\_occupancy\_packing\_block\_size | Accepted. variable has been renamed and range has been specified in latest version of the specifications, | c |
| FI 057 |  | 07.04.9 |  | te | What is the intended mapping of ops\_occupancy\_codec\_id | provide video coding mapping information | Accepted. The mapping will be provided in SEI message. | i |
| FI 058 |  | 08.01 |  | ed | Decoding process: Step 4 is only performed if attributes is present, and it is performed for every attribute stream available. | Change text to “For every present attribute video sub-stream in the bitstream, the attribute video decoding process, as specified in clause 8.3, is invoked. | Accepted. This is already addressed in the current text. | c |
| FI 059 |  | 08.01 |  | ge | Decoding process: How is the bitstream “demultiplexed”, i.e. into what, are some part duplicated (for example patch sequence data ). What are “sub streams” in this context? | Define multiplexing and sub stream. | Accepted. Will be clarified in next version of specifications | i |
| FI 060 |  | 08.01 |  | ge | Decoding process: Can steps 2-5 be reordered or not? | Define order or specify that the ordering is free. | Accepted. Will be clarified in next version of specifications | i |
| FI 061 |  | 08.01 |  | ge | Missing definitions | Define “output order” and “output timing” | Accepted. Definitions will be provided in next version of the specifications | i |
| FI 062 |  | 08.01 |  | ge | Missing definition for “may” of the following text: “The decoding process may already include the 3D reconstruction” | Change text to: “Based on the selected V-PCC codec profile, the decoding process may already include the 3D reconstruction …” | Accepted. Will be clarified in next version of specifications  Delete sentences regarding reconstruction in the decoding process | i |
| FI 063 |  | 08.02 |  | te | Missing information decoding process input details, i.e. is it the stripped payload only? | Provide details on decoding process inputs. | Accepted. Will be clarified in next version of specifications (stripped payload for video codec) | i |
| FI 064 |  | 08.02 |  | te | See previous comment on absolute depth coding (clause 7.3.6) | See previous comment on absolute depth coding:  Remove delta depth coding functionality. | Rejected. The impact of differential coding on layers coded in independent streams is significant. | c |
| FI 065 |  | 08.02 |  | ed | This clause does not handle pixel interleaving (sps\_pixel\_deinterleaving\_flag is 1) | Add handling of pixel interleaving for attributes. | Rejected. This will be handled in the reconstruction process description | c |
| FI 066 |  | 08.03 |  | te | Missing information decoding process input details, i.e. is it the stripped payload only? | Provide details on decoding process inputs. | Accepted. Will be clarified in next version of specifications (stripped payload for video codec) | i |
| FI 067 |  | 08.04.1 |  | ed | Missing definitions for intra, inter and PCM coded patches in this context | Provide definitions | Accepted. Definitions will be provided in next version of the specifications | i |
| FI 068 |  | 08.05 |  | te | Occupancy upscaling process needs to be defined to ensure conformance. | Provide occupancy upscaling process definition. | Accepted. Conformance point A does not require scaling  Conformance point B will require exact definitions for all required transformations | i |
| FI 069 |  | 09.02 |  | te | If upscaling is outscoped from the specification, how can conformance be achieved? | Provide upscaling process definition. | Accepted. Conformance point A does not require scaling  Conformance point B will require exact definitions for all required transformations | i |
| US 070 |  | 09.02, 9.3 |  | te | lossless\_geometry and lossless\_geometry\_444 flags are not signalled but used in the decoding process. | Consider signalling of lossless\_geometry and/or lossless\_geometry\_444 at the frame or sequence level. Otherwise modify the decoding process to remove references to these flags. | Accepted. Decision will be taken at MPEG127 | d |
| FI 071 |  | 09.04.1 |  | ed | “Updated” for pointCnt not clear, is the old value overwriten, or are the new points added to the old value. | Change “updated with” to “incremented by” | Accepted | c |
| FI 072 |  | 09.04.2, 9.4.3 |  | ed | Missing definition for far/near layer | Define far/near layer | Accepted. Will be clarified in next version of specifications | i |
| FI 073 |  | 09.04.3 |  | te | It is not clear how pixel interleaving performs if there are more than two layers. | Restrict pixel interleaving to two layers only. | Accepted, corrected in latest version of specification | c |
| US 074 |  | 10 |  | te | Description of the arithmetic decoding process is missing. | Include specification of the arithmetic decoding process. | Rejected: Arithmetic coding has been removed from the V-PCC specification. | c |
| 075 | 8 | All |  | te | The references of codec\_id, profile\_idc, tier\_flag, and level\_idc are missing. | Provide the references of codec\_id, profile\_idc, tier\_flag, and level\_idc | Accepted. Will be clarified in next version of specifications | i |
| US 076 |  | All |  | ge | The text should be checked to ensure completeness, correctness, and editorial maturity. | Please make editorial improvements and consider all appropriate technical contributions. | Accepted | i |
| US 077 |  | All |  | ge/te | In the current specification, missed/independent point patches are not properly specified/identified. Also there is no proper identification whether the patch is in the same video as the normal points or in a separate video. There is also the question of supporting more than one such patches. | Clarify the usage and syntax of missed/independent point patches. | Accepted, corrected in latest version of specification | c |
| US 078 |  | All |  | ge | In the current specification profile, tier and level definitions are missing. | Define appropriate profiles, tiers and levels to facilitate adoption of V-PCC in the marketplace | Accepted. Will be clarified in next version of specifications | i |
| FR  079 |  | 8 and 9 |  | ge | It is recommended to include additional figures with block diagrams for decoding and reconstruction |  | Accepted. Will be provided in next version of specifications | i |
| FR  080 |  |  |  | ge | Annex A on “Profiles, tiers and levels” is empty in the Study of CD. The standard shall address the applications described in related use cases/requirements documents by establishing an appropriate number of profiles, tiers and levels. For ensuring the preservation of creative intend, there shall also be profile(s) that include the reconstruction of the 3D point cloud. |  | Accepted. Will be provided in a future version of specifications | i |
| FR  081 |  | 7.3.6 |  | te | sps\_attribute\_count is coded with 16 bits. Do we need a that high number of attributes ? |  | Accepted. Has been reduced to 7bits | c |
| FR  082 |  | 7.1 |  | ed | There is a naming mismatch between Figure 7.1 and Table 7.4 |  | Accepted. Figure will be revised. | i |
| FR  083 |  | 7.3 |  | ge | It is recommended to include figures describing the relation between syntax structures so as to ease the reading of the specification |  | Accepted. Will be provided in next version of specifications | i |
| FR  084 |  | 7.3.33 |  | te | Mismatch between input parameter patchIndex and variable p |  | Accepted. Will be verified in next version of specifications | i |

ISO\_IEC CD 23090-5\_ANSI.doc: Collation successful

ISO\_IEC CD 23090-5\_JISC.doc: Collation successful

ISO\_IEC CD 23090-5\_KATS.doc: Collation successful

ISO\_IEC CD 23090-5\_SFS.doc: Collation successful

Collation of files was successful. Number of collated files: 4

SELECTED (number of files): 4

PASSED TEST (number of files conformed to CCT table model): 4

FAILED TEST (number of files conformed to CCT table model): 0

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