| **Page** | **Section** | **Line** | **Type** | **Comment/ Rationale** | **Source of Comment (Name/Agency)** | **Suggested Disposition** | **Disposition**  **(Completed by Principal Editor)** |
| --- | --- | --- | --- | --- | --- | --- | --- |
| 1-1 | 1.2, para 2 | 4 | ed | Typo: "For example and RDM..." | David Berry / NASA | Change "and" to "an" |  |
| 1-1 | 1.2, para 2 | 6 | te | States that "The presence of users defined keywords..." | David Berry / NASA | We should discuss whether or not this convention should be continued in Nav WG standards. I'm in favor of deleting from RDM. |  |
| 1-1 | 1.2, para 2 | 7 | ed | Typo: "... information to be exchange after..." | David Berry / NASA | Change "exchange" to "exchanged" |  |
| 1-1 | 1.2, para 3 | All | te | Regarding RDM originators and consistency... should this admonition appear? | David Berry / NASA | Discuss viability of this admonition. |  |
| 1-3 | 1.4.2 | 1 | ed | Typo: "normative specification" | David Berry / NASA | Change "specification" to "specifications" (plural) |  |
| 1-4 | 1.5 | Ref [1] | ed/te | The SI document has been updated... it's still shown as the 2006 edition, but it's stated to have been updated in 2014. | David Berry / NASA | Change "2006" to "2006, updated 2014" (see http://www.bipm.org/en/publications/si-brochure/ ) at the top, just below the menu bar. |  |
| 1-4 | 1.5 | Ref [5] | ed/te | Some of the main words in the title are not capitalized. | David Berry / NASA | Capitalize the main words in the title. |  |
| 1-4 | 1.5 | Ref [5] | ed/te | Typically this type of reference would be put into a special annex of "Informative References" | David Berry / NASA | Add an annex for "Informative References" (see the CDM, for example) |  |
| 3-1 | 3.1.3 | 1 | te | The stated requirement here cannot be enforced. | David Berry / NASA | Change "shall" to "should" |  |
| 3-2 | Table 3-1, CREATION\_DATE |  | ed | Directing the reader to reference [6] is not specific enough (e.g., there are several binary formats in that document). | David Berry / NASA | Change "see [6]" to "see 4.3.2.5", because that is where it is stated to use either "ASCII Time Code A or B". |  |
| 3-2 | Table 3-1, ORIGINATOR |  | te | The CESG has recently indicated that "freeform" agency or operator identifiers are discouraged. | David Berry / NASA | Change the ICD recommendation to use of the SANA Registry (specific registry TBD... they are reorganizing the overall registry). |  |
| 3-2 | Table 3-1, MESSAGE\_FOR |  | te | Alexandru's comment states "Proposed for deletion". I think this is a good idea. | David Berry / NASA | Remove "MESSAGE\_FOR" keyword |  |
| 3-3 | Table 3-2 |  | ed/te | There are several keywords identical to those in the CDM, which is good from a re-use standpoint. Putting them in the same order in the RDM and CDM might be something to consider. | David Berry / NASA | Consider. |  |
| 3-3 | Table 3-2, OBJECT\_NAME |  | te | The Description refers to the UNOOSA registry, but doesn't indicate how to find it. | David Berry / NASA | Suggest adding a reference in Section 1.5, and then adding the reference number to the description. |  |
| 3-3 | Table 3-2, OBJECT\_OWNER |  | te | The CESG may suggest that this info come from an organization related SANA registry. | David Berry / NASA | Consider changing the preferred source to the SANA Registry (specific registry TBD... they are reorganizing the overall registry), with an option to use freeform text if not in SANA. |  |
| 3-3 | Table 3-2, ORBIT\_CENTER |  | te | "ORBIT\_CENTER" is used in the CDM, but "CENTER\_NAME" is used in all the ODM and ADM messages. I cannot recall why we made this inconsistent change, but there is a clear precedent for "ORBIT\_CENTER" | David Berry / NASA | Discuss which keyword to use. |  |
| 3-4 | Table 3-2 |  | ed | Headers do not appear on this page of the table. | David Berry / NASA | Activate the MS Word "Repeat Header Rows" feature. |  |
| 3-4 | Table 3-2, TIME\_SYSTEM |  | te | The description indicates that a time system value should be chosen from the "Navigation Data - Definitions & Conventions" Green Book, which makes sense on one level. Unfortunately, the CCSDS doesn't allow references like this to a non-normative document in a normative document. That's why all the books have an annex that contains the allowed time systems and reference frames. (Just for the record, I personally made the same error in the first issue of the ODM.) | David Berry / NASA | Consider adding a normative Annex that contains the allowed time systems. Alternatively, we have discussed the potential of putting a normative list in the SANA Registry, which would simplify a lot of our standards. |  |
| 3-4 | Table 3-2, REF\_FRAME |  | te | The description indicates that a reference frame value should be chosen from the "Navigation Data - Definitions & Conventions" Green Book. See above "TIME\_SYSTEM" comment for other relevant discussion. | David Berry / NASA | Consider adding a normative Annex that contains the allowed reference frames. Alternatively, we have discussed the potential of putting a normative list in the SANA Registry, which would simplify a lot of our standards. |  |
| 3-4 | Table 3-2, GRAVITY\_MODEL |  | ge | The description here (and for several other entries in the table) refers to "the simulation", however, it is not clear what simulation is being referred to. | David Berry / NASA | Consider adding some contextual material in either Section 2 or an informative annex about the re-entry modeling methodology, and how an RDM might figure into that (either as input to or output from the simulation). |  |
| 3-4 | Table 3-2, N\_BODY\_PERTURBATIONS |  | te | The Nav WG will be filing a corrigendum to the CDM on this keyword (but it hasn't been filed yet). We will want to make this keyword consistent with the corrected CDM and the OCM. | David Berry / NASA | None for now, but may need to change the examples of values when the corrigendum is completed. |  |
| 3-5 | 3.4.1 | 7 | te | Refers to a logical block for "User defined parameters." | David Berry / NASA | We should discuss whether or not this convention should be continued in Nav WG standards. I'm in favor of deleting from RDM. |  |
| 3-6 | Table 3-3 |  | ed | Headers do not appear on this page of the table. | David Berry / NASA | Activate the MS Word "Repeat Header Rows" feature. |  |
| 3-6 | Table 3-3, ORBIT\_LIFETIME |  | te | The value is specified to be in a unit of days, but it is not specified if this should be integer days or fractional days. | David Berry / NASA | Specify the format of the value (integer or double precision). |  |
| 3-6 | Table 3-3, LIFETIME\_DISPERSION |  | te | This keyword seems out of place. | David Berry / NASA | Move "LIFETIME\_DISPERSION" immediately after the "ORBIT\_LIFETIME" keyword. |  |
| 3-6 | Table 3-3, NOMINAL\_REENTRY\_EPOCH |  | te | No format for the value is specified. | David Berry / NASA | Add "See 4.3.2.5 for format specification." |  |
| 3-6 | Table 3-3, REENTRY\_WINDOW\_START |  | te | No format for the value is specified. | David Berry / NASA | Add "See 4.3.2.5 for format specification." |  |
| 3-6 | Table 3-3, REENTRY\_WINDOW\_END |  | te | No format for the value is specified. | David Berry / NASA | Add "See 4.3.2.5 for format specification." |  |
| 3-6  3-7 | Table 3-3 |  | ge | Question based on ignorance: Why is the uncertainty matrix of re-entry location only based on North and East? | David Berry / NASA | Question. No action necessarily required. |  |
| 3-7 | Table 3-3 | 2 | te | The comment for the state vector is proposed for removal. I don't think this is a good idea, but we should discuss. | David Berry / NASA | Discuss. |  |
| 3-7 | Table 3-3 | 2 | te | In the comment for the state vector, it is not indicated whether or not a partial state vector is permissible. | David Berry / NASA | Should state in the comment that all or none of the state vector elements should be provided. |  |
| 3-7 | Table 3-3, EPOCH |  | ed | Verb tense: Instead of "will be given", should use "is given". | David Berry / NASA | Change "will be given" to "is given" |  |
| 3-7 | Table 3-3, EPOCH |  | ed | Format for the EPOCH is not given. | David Berry / NASA | Add "See 4.3.2.5 for format specification." |  |
| 3-7 | Table 3-3, \*\_DOT |  | te | Question based on ignorance: Not familiar with the use of u-component, v-component, w-component for the velocity components | David Berry / NASA | Question: Is this common usage? |  |
| 3-7 | Table 3-3 | 2 | te | The comment for the position/velocity covariance matrix is proposed for removal. I don't think this is a good idea, but we should discuss. | David Berry / NASA | Discuss. |  |
| 3-8 | Table 3-3 | 2 | te | The comment for the spacecraft parameters is proposed for removal. I don't think this is a good idea, but we should discuss. | David Berry / NASA | Discuss. |  |
| 3-8 | Table 3-3, SOLAR\_RAD\_AREA |  | te | In a re-entry scenario, is this necessary? The SOLAR\_RAD\_COEFF is proposed for removal. | David Berry / NASA | Discuss |  |
| 3-8 | Table 3-3, DRAG\_AREA |  | ed/te | "DRAG\_AREA" in ODM, "AREA\_DRG" in CDM. Cannot recall why we allowed this inconsistency. | David Berry / NASA | Discuss |  |
| 3-8 | Table 3-3, TIME\_LASTOB\_END | 1 | ed | Description states "The start of a time interval...", but this is the end... looks like a copy/paste error. | David Berry / NASA | Change "The start..." to "The end..." |  |
| 3-8 | Table 3-3, RECOMMENDED\_OD\_SPAN |  | te | The value is specified to be in a unit of days, but it is not specified if this should be integer days or fractional days. | David Berry / NASA | Specify the format of the value (integer or double precision). |  |
| 3-8 | Table 3-3, ACTUAL\_OD\_SPAN |  | te | The value is specified to be in a unit of days, but it is not specified if this should be integer days or fractional days. | David Berry / NASA | Specify the format of the value (integer or double precision). |  |
| 3-9 | Table 3-3, WEIGHTED\_RMS |  | te | The method for calculating this is not specified. | David Berry / NASA | Add material to section 2, or the description in Table 3-3, or an informative annex, as to how this is calculated. |  |
| 3-9 | Table 3-3, User defined parameters |  | te | The concept of user defined parameters is a slippery one in the context of standards development. | David Berry / NASA | Discuss whether or not this should be retained. |  |
| 3-9 | 3.4.4 | 1 | ed/te | Standards text... "COMMENT lines are allowed..." should be re-worded. | David Berry / NASA | Change cited text to "COMMENT lines may be utilized..." or "... may be used..." |  |
| 3-9 | 3.4.5 | 1 | ed | Typo: "IMPACT\_REFT\_FRAME" | David Berry / NASA | Change "REFT" to "REF" |  |
| 3-9 | 3.4.8 | All | te | The concept of user defined parameters is a slippery one in the context of standards development. | David Berry / NASA | Discuss whether or not this should be retained. |  |
| 3-10  3-11 | 3.5 | All | te | The CCSDS editor is not in love with examples in-line in the standards text. | David Berry / NASA | Consider moving the examples to an informative annex. |  |
| 3-10 | Figure 3-1 |  | te | The figure caption says that it only uses mandatory keywords, however, the example contains "OBJECT\_TYPE", which is not mandatory. It also does not contain the "NOMINAL\_REENTRY\_ALTITUDE", which is listed as mandatory. | David Berry / NASA |  |  |
| 3-10 | Figure 3-2 |  | te | The figure does not contain the "NOMINAL\_REENTRY\_ALTITUDE", which is listed as mandatory. | David Berry / NASA | Add the "NOMINAL\_REENTRY\_ALTITUDE" |  |
| 4-1 | 4.2.3.1 | 1 | ed/te | Uses the word "obligatory", which was used in earlier Nav WG standards, but must now be replaced. | David Berry / NASA | Replace "obligatory" with "mandatory". |  |
| 4-3 | 4.3.3.1 | 4 | ed/te | Mathematical error: +2,147,483,648 is not 231-1 | David Berry / NASA | Change "+2,147,483,648" to "+2,147,483,647" |  |
| 4-3 | 4.3.3.1 | 4 | ed/te | Mathematical error: 221 is not correct. | David Berry / NASA | Change "-221" to "-231" |  |
| 4-4 | 4.3.3(b) | 1 | te | Indicating "the correct case" may not be sufficient. | David Berry / NASA | Should indicate "as shown in Table 3-3", since that table shows the correct case. |  |
| A-11 | Annex B | All | ed | The annex is just what is shown in the document template. | David Berry / NASA | Recommend to copy Annex E from the PRM document and modify as necessary (should be minimal modifications required). |  |
| A-14  A-15 | Annex D | Table D-1 | te | The "M/O" column in the requirements list is not necessary. | David Berry / NASA |  |  |
| A-14  A-15 | Annex D | Table D-1 | te | This annex specifies the requirements for the RDM specification itself, not the requirements for a given instantiation of the RDM, so the requirements should primarily be "shall" statements. | David Berry / NASA | Re-evaluate the "shall/should" wording of the requirements. |  |