| **Page** | **Section** | **Line** | **Type** | **Comment/ Rationale** | **Source of Comment (Name/Agency)** | **Suggested Disposition** | **Final Disposition****(Do Not Fill In)** |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Cover | N/A | N/A | te | The cover has a few indications of official status that should be removed/modified. As Chair, I view this as my failure since I should have let you know about these things before distribution. Mea culpa. Sorry. | David S. Berry / NASA | (a) Change "RECOMMENDED STANDARD" to "PROPOSED STANDARD"(b) Change "CCSDS 502.0-B-2" to "CCSDS 502.0-P-2.30"(c) Change "Blue Book" to "Pink Book"(d) Remove the corrigendum box in the lower right. Note that some of these changes are "fields" that can be changed in the document "Properties/Custom" section... I see you already know about this feature from looking at the properties in this draft. This will fix the page footers too.You must also plan to attend the CCSDS Editor's Boot Camp at the earliest opportunity. It will help you avoid some pitfalls as we move through the document changes. |  |
| Many | Many | N/A | ed | The artifacts of Corrigendum 1 are still present in the draft (e.g., p.1-3) | David S. Berry / NASA | The artifacts of the corrigendum can be removed (margin indicators, page footer overrides, etc.) |  |
| General | 6, etc. | N/A | ed, te | I understand the difficulty coming up with a name, but I wonder if "hybrid" is the best choice. I think "comprehensive" would be better (but "OCM" could be problematic given the JSpOC message of that acronym". | David S. Berry / NASA | Discuss on a telecon or at Darmstadt. |  |
| General | N/A | N/A | te | For the past few years, we have had a direction towards placing XML formatting information in the individual standards documents (e.g., CDM, work to date on TDM revision, work to date on NHM).  | David S. Berry / NASA | We should discuss at Darmstadt, but based on current direction, there would be some XML material migrated from the CCSDS 505.0-B-1 document into the ODM document revision. |  |
| 2-1 | 2.1 | 6-8 | ed/te | Part of the WG plan for revisions of the documents has been to move the relevant sections of the NDM/XML 505.0-B-1 into the respective documents. | David S. Berry / NASA | We should discuss given the magnitude of this change. |  |
| 6-2 | 6.2.1 (2) | 1 | te | For consistency with other CCSDS Nav WG standards, the metadata section should be required | David S. Berry / NASA | From: "single, optional metadata"To: "single metadata" |  |
| 6-2 | Table 6-1 | N/A | te | For consistency with other CCSDS Nav WG standards, the metadata section should be required | David S. Berry / NASA | From: "Optional Metadata"To: "Required Metadata" |  |
| 6-2 | Table 6-1 | N/A | te | Structurally speaking, the space object physical characteristics and force model parameters would be considered "metadata" in the OPM/OMM/OEM. We have not entertained an argument for departing from the metadata/data structure used in all other Nav WG standards. | David S. Berry / NASA | Include these 2 sections as logical blocks in the metadata section. |  |
| 6-2 | Table 6-1 | N/A | te | Structurally speaking, the maneuver section, orbit data section, covariance data, and STM would be considered part of the Data Section the OPM/OMM/OEM. We have not entertained an argument for departing from the metadata/data structure used in all other Nav WG standards. | David S. Berry / NASA | Include these sections as logical blocks in the Data section. |  |
| 6-3 | 6.2.2.2 | 1 | ed | The statement regarding location of approved values for the time system is OK here, but should be repeated in the TIME\_SYSTEM table entry. | David S. Berry / NASA | Put this note into the table entry for TIME\_SYSTEM. Decision to delete or retain 6.2.2.2 is up to you. |  |
| 6-4 | Table 6-2 | N/A | ed/te | COMMENT: There is a long history of issues with COMMENTs in the Nav WG messages. It is suggested that the conventions established elsewhere in the ODM be continued. | David S. Berry / NASA | Comments in the header are only allowed after the CCSDS\_OxM\_VERS keyword for the other messages. |  |
| 6-4 | Table 6-2 | N/A | ed | ORIGINATOR: Regarding your question on constraints... the Nav WG has not placed any restrictions on this in the ODM, but there is a convention for the CDM that values must be from a specified SANA Registry. I see the CCSDS possibly going in this "registry" direction for originators (but that could take years!). | David S. Berry / NASA | No action necessary. |  |
| 6-4 | Table 6-2 | N/A | ed/te | TECH\_POC: This field is not consistent with similar fields found in the CDM. | David S. Berry / NASA | Review the CDM keywords (and structure) for similar keywords. |  |
| 6-4 | Table 6-2 | N/A | ed/te | TIME\_SYSTEM: Placing this field in the header is not consistent with any other Nav WG standard. Also, in all other ODMs the TIME\_SYSTEM is required. | David S. Berry / NASA | Strongly suggest moving to Metadata section, and making it required rather than optional (note that assigning a default value here essentially makes it a required field anyway). Given that it's only a single line, specifying the time system is not a burden on the producer. |  |
| 6-4 | Table 6-2 | N/A | ed/te | EPOCH\_TZERO: Not consistent with other header information, especially after TIME\_SYSTEM is moved to the Metadata Section. | David S. Berry / NASA | Move EPOCH\_TZERO to Metadata Section along with the TIME\_SYSTEM. |  |
| 6-4 | Table 6-2 | N/A | ed/te | EPOCH\_TZERO: I think there are a few issues with the text starting "If TIME\_SYSTEM is UTC...". Specifically, "in the immediate proximity of EPOCH\_TZERO" is too vague. Of what magnitude is the delta-T "in the immediate proximity"? Also, stating that a leap second is "an extra second that is added to the previous day" is not correct... it would mean that a leap second scheduled for 06/30/2015 would be applied on 06/29/2015. I think replacing "previous" with "scheduled" would fix this. Finally, given an EPOCH\_TZERO of 07/01/2015T00:00:00 one cannot ascertain whether or not the leap second was processed correctly. That epoch will occur regardless. | David S. Berry / NASA | 1. Quantify "the immediate proximity" of EPOCH\_TZERO.2. Change "previous day" to "scheduled day" or something that doesn't imply a day different than the actual date the leap second is scheduled.3. Remove the last bullet because I don't think it adds anything. |  |
| 6-5 | 6.2.3.2 | 1 | ed/te | This statement occurring here is consistent with the idea of moving "TIME\_SYSTEM" to metadata. | David S. Berry / NASA | No action necessary. |  |
| 6-5 | 6.2.3.3 | 1 | ed/te | It is OK to specify a single metadata section, but this is not consistent with the structure of the OEM, which the OHM most closely resembles. | David S. Berry / NASA | Consider whether additional structure is necessary (e.g., alternating metadata/data sections as in OEM). I don't understand the need for this change. |  |
| 6-5 | Table 6-3 | N/A | ed/te | COMMENT: There is a long history of issues with COMMENTs in the Nav WG messages. It is suggested that the conventions established elsewhere in the ODM be continued. Allowing comments as stated effectively eliminates the ability to create an XML instantiation of the OHM that can be validated against a schema. | David S. Berry / NASA | Comments in the metadata section are only allowed after the META\_START keyword for the other messages.  |  |
| 6-5 | Table 6-3 | N/A | te | OBJECT\_NAME: Since updates of the SPACEWARN catalog have been discontinued, we've lately been considering a change to using the UN Registry of objects launched into space (see the NHM Metadata Section, the first example). | David S. Berry / NASA | Consider changing from SPACEWARN to the UN Registry. |  |
| 6-5 | Table 6-3 | N/A | te | OBJECT\_NAME: There is no requirement to identify the object for which all the OHM info is provided. | David S. Berry / NASA | OBJECT\_NAME should be required. |  |
| 6-5 | Table 6-3 | N/A | te | OBJECT\_ID: Since updates of the SPACEWARN catalog have been discontinued, we've lately been considering a change to using the UN Registry of objects launched into space (see the NHM Metadata Section, the first example). | David S. Berry / NASA | Consider changing from SPACEWARN to the UN Registry. |  |
| 6-5 | Table 6-3 | N/A | te | OBJECT\_ID: There is no requirement to identify the object for which all the OHM info is provided. | David S. Berry / NASA | OBJECT\_ID should be required. |  |
| 6-6 | Table 6-3 | N/A | ed | The table headings are not present | David S. Berry / NASA | Select the "Heading Rows Repeat" option in MS Word Table menu. [NOTE: In general this option should be selected for all tables] |  |
| 6-7 | 6.2.4.2 | 2 | ed/te | This is not stated as a requirement. | David S. Berry / NASA | In line 2, change "are" to "shall be". |  |
| 6-7 | 6.2.4.4 thru 6.2.4.9 | All | te | By CCSDS convention, this material should appear in an informative annex. | David S. Berry / NASA | Create an informative annex for explanatory material like this (see Conjunction Data Message Annex E for an example). Note that some CCSDS reviewers even objected to this vehicle, arguing that a Green Book should have been created. |  |
| 6-8 | Table 6-4 | N/A | ed/te | COMMENT: There is a long history of issues with COMMENTs in the Nav WG messages. It is suggested that the conventions established elsewhere in the ODM be continued. Allowing comments as stated effectively eliminates the ability to create an XML instantiation of the OHM that can be validated against a schema. | David S. Berry / NASA | Allow comments only at the beginning of the physical characteristics logical block. See Table 3-4 in the CDM for how comments were handled for the "logical blocks" in the CDM. |  |
| 6-8 | Table 6-4 | N/A | ed | For the "AREA\_ALONG..." elements, the reference should be revised, since "as defined above" will not be applicable. | David S. Berry / NASA | Point the reader to the informative annex suggested above. |  |
| 6-8 | Table 6-4 | N/A | te | Should the DRAG\_SCALE have a default value of 1.0 specified?  | David S. Berry / NASA | Consider. |  |
| 6-8 | Table 6-4 | N/A | ed | DRAG\_SCALE, Units: minor typo "na". | David S. Berry / NASA | From: "na"To: "n/a" |  |
| 6-9 | Table 6-4 | N/A | ed | The table headings are not present | David S. Berry / NASA | Select the "Heading Rows Repeat" option in MS Word Table menu. |  |
| 6-9 | Table 6-4 | N/A | ed | The AREA\_ALONG\_PHYSDIM... keywords are separated from other "PHYSDIM" related keywords. | David S. Berry / NASA | Group all the PHYSDIM related keywords together |  |
| 6-9 | Table 6-4 | N/A | ed | Typo? I'm not familiar with this convention: "... which the PHYSDIM\_OEM frame maps to via t data..." | David S. Berry / NASA | Do you mean "PHYSDIM\_OEB"? Is "via t data" correct?Consider and correct as necessary. |  |
| 6-9 | Table 6-4 | N/A | ed | PHYSDIM\_MAX, units: minor typo. | David S. Berry / NASA | From: "1 m".To: "m" |  |
| 6-9 | Table 6-4 | N/A | ed | PHYSDIM\_FRAME: Assigning a default value here essentially makes it an obligatory field if the space objects physical characteristics are provided. | David S. Berry / NASA | Suggest removing the assignment of default and making this an obligatory field if the section is included. Suggestion that this be RIC could be included. |  |
| 6-9 | Table 6-4 | N/A | ed | PHYSDIM\_FRAME, Units: minor typo "na". | David S. Berry / NASA | From: "na"To: "n/a" |  |
| 6-9 | Table 6-4 | N/A | te | PHYSDIM\_MAX: I think "size" here is ambiguous... should this be "dimension"? | David S. Berry / NASA | Re-word so as to be unambiguous. |  |
| 6-9 | Table 6-4 | N/A | ed | PHYS\_PITCH/ROLL/YAW reference "OEM frame" | David S. Berry / NASA | Do you mean "OEB" frame? |  |
| 6-9 | Table 6-4 | N/A | te | PHYS\_PITCH/ROLL/YAW refer the reader to "(defined above)".  | David S. Berry / NASA | Refer readers to the informative annex that describes the OEB |  |
| 6-9 | Table 6-4 | N/A | ed | SOLAR\_RAD\* keywords are in a different order than the DRAG\* keywords. | David S. Berry / NASA | Consider ordering AREA, COEFF, and SCALE consistently for DRAG and SOLAR. For consistency with OPM, the order should be AREA, COEFF, SCALE (i.e., like "DRAG" in Table 6-4. |  |
| 6-9 | Table 6-4 | N/A | ed | SOLAR\_RAD\_SCALE, Units: units are specified but should be not applicable. | David S. Berry / NASA | From: "m\*\*2"To: "n/a" |  |
| 6-9 | Table 6-4 | N/A | te | TX\_FREQ, TX\_EIRP: Not sure these are necessary and/or desirable in the ODM. | David S. Berry / NASA | Previous discussion in the WG led to these being considered not applicable to the ODM concept. Let's discuss at Darmstadt. |  |
| 6-9 | Table 6-4 | N/A | te | VM: We are in the process of adding a similar keyword to the TDM ("MAG").  | David S. Berry / NASA | See TDM P1.0.2, and do a case sensitive search on "MAG". Can we make these consistent? Perhaps not given the reference values cited for "VM". |  |
| 6-10 | Table 6-5 | N/A | ed | The table headings are not present | David S. Berry / NASA | Select the "Heading Rows Repeat" option in MS Word Table menu. |  |
| 6-10 | Table 6-5 | N/A | ed/te | COMMENT: There is a long history of issues with COMMENTs in the Nav WG messages. It is suggested that the conventions established elsewhere in the ODM be continued. Allowing comments as stated effectively eliminates the ability to create an XML instantiation of the OHM that can be validated against a schema. | David S. Berry / NASA | Allow comments only at the beginning of the physical characteristics logical block. See Table 3-4 in the CDM for how comments were handled for the "logical blocks" in the CDM. |  |
| 6-10 | Table 6-5 | N/A | ed/te | GRAV\_MODEL: The CDM uses "GRAVITY\_MODEL". | David S. Berry / NASA | For consistency, use "GRAVITY\_MODEL" as the keyword. |  |
| 6-10 | Table 6-5 | N/A | ed/te | GRAV\_MODEL\_NXM: Not consistent with the CDM | David S. Berry / NASA | See how this was handled in the CDM. Consider consistent usage. |  |
| 6-10 | Table 6-5 | N/A | ed/te | ATMOSPHERE\_MODEL: keyword not consistent with CDM | David S. Berry / NASA | Use "ATMOSPHERIC\_MODEL" for consistency. |  |
| 6-11 | Table 6-5 | N/A | ed/te | 3RD\_BODY\_PERTS: keyword and value not consistent with the CDM | David S. Berry / NASA | See how this was handled in the CDM. Consider consistent usage. |  |
| 6-11 | Table 6-5 | N/A | te | 3RD\_BODY\_PERTS: The list of 39 bodies is arbitrary (why include KBO's but not Vesta?) and does not lend itself easily to extension except by ICD. True, there may be no "good" way to handle this, including the way it was done in the CDM. But if there's an ICD involved at all, why bother putting this in the message itself? | David S. Berry / NASA | This should be a discussion item at Darmstadt. Also, given the long list of bodies, and the unwieldy nature of a length 39 string of 0's and 1's, a hexadecimal value should be considered. Just as hard to "read", but more manageable. If this construct survives the cut, a more detailed discussion (with diagram of LSB/MSB) should be included in the informative annex. |  |
| 6-11 | Table 6-5 | N/A | ed | NUTA\_CORR\_\*: The keywords seem a bit clumsy. | David S. Berry / NASA | No specific recommendation.  |  |
| 6-11 | Table 6-5 | N/A | te | SOLAR\_F10P7\*: the units are non-SI, which we should discuss... we've tried to stick with SI units. | David S. Berry / NASA | Can we consider "watts per square metre per hertz" as the units, given that these are all SI units? |  |
| 6-11 | Table 6-5 | N/A | te | KSUBP: I'm not sure this is appropriate for an ORBIT message. Space weather, yes, but we are not in that business. | David S. Berry / NASA | We should discuss at Darmstadt. |  |
| 6-116-12 | Table 6-5 | N/A | ed | INTERP\_METHOD\*, SHADOW\_MODEL: I think what you have in the Examples column should be in the Description column | David S. Berry / NASA | Move Example text 2 columns to left. |  |
| 6-13 |  6.2.6.1 | 2 | ed | Missing word: "... in OHM maneuver..." | David S. Berry / NASA | From: "... in OHM maneuver..." To: "...in an OHM maneuver..." |  |
| 6-13 |  6.2.6.2 | 2 | te | While relative time tags may be desirable, it is a departure from other messages in the ODM.  | David S. Berry / NASA | Consider adding an option to specify whether the time tags are absolute or relative to EPOCH\_TZERO. |  |
| 6-13 |  6.2.6.2 | 2 | te | This section is written as a statement of fact rather than a requirement according to the convention in sec 1.6 | David S. Berry / NASA | Rewrite as a requirement. |  |
| 6-13 | 6.2.6.3 | 4 | te | What is the value of having the maneuver duration half before the epoch and half after (at least this is implied to me by the phrase "centered about the specified maneuver time" ? This may well be technical ignorance on my part... but I also imagine that there could be undesirable effects if the stated assumption is not satisfied. | David S. Berry / NASA | Consider if this is the right assumption for the maneuver duration value. |  |
| 6-13 | 6.2.6.3 | 5-8 | te | I wonder if the mass deployment scenario is an unnecessary complication at this point.  | David S. Berry / NASA | Consider whether this is sufficiently common to warrant standardization at this time. |  |
| 6-13 |  6.2.6.5 | 3 | ed/te | Word choice... "message creator can" | David S. Berry / NASA | From: "message creator can"To: "message creator may" |  |
| 6-13 |  6.2.6.6 | 2 | ed/te | Word choice... "OHM originator can", "message creator can" | David S. Berry / NASA | From: "OHM originator can", "message creator can"To: "OHM originator may", "message creator may" |  |
| 6-13 |  6.2.6.7 | 2 | ed/te | Word choice... "are only allowed if" | David S. Berry / NASA | From: "are only allowed if"To: "shall appear only if" |  |
| 6-13 | 6.2.6.36.2.6.56.2.6.6  | N/A | ed/te | The Nav WG convention for things such as the status flag used in the data row in these sections would normally be considered "metadata", and so would be represented by a keyword with a value such as you have specified in 6.2.6.7, i.e., "PREDICTED", "ACTUAL" (or e.g., "RECONSTRUCT"). | David S. Berry / NASA | Consider moving the status flag out of the data line, since it requires a decoder ring to interpret. |  |
| 6-14 | Table 6-6 | N/A | ed/te | MNVR\_START: Elsewhere in this document (and in the ADM), we have used "MAN" as the abbreviation for maneuver. | David S. Berry / NASA | From: "MNVR\_START"To: "MAN\_START" |  |
| 6-14 | Table 6-6 | N/A | ed/te | MNVR\_TYPE: Elsewhere in this document (and in the ADM), we have used "MAN" as the abbreviation for maneuver. | David S. Berry / NASA | From: "MNVR\_TYPE"To: "MAN\_TYPE" |  |
| 6-14 | Table 6-6 | N/A | te | MNVR\_TYPE: Having a default of this type essentially makes it a required field. | David S. Berry / NASA | Remove the statement about default value and make it an obligatory field if the Maneuver section is included. |  |
| 6-14 | Table 6-6 | N/A | ed/te | COMMENT: There is a long history of issues with COMMENTs in the Nav WG messages. It is suggested that the conventions established elsewhere in the ODM be continued. Allowing comments as stated effectively eliminates the ability to create an XML instantiation of the OHM that can be validated against a schema. | David S. Berry / NASA | Allow comments only at the beginning of the maneuver specification logical block. See Table 3-4 in the CDM for how comments were handled for the "logical blocks" in the CDM. |  |
| 6-14 | Table 6-6 | N/A | te | MAN\_REF\_FRAME: Having a default of this type essentially makes it a required field. | David S. Berry / NASA | Remove the statement about default value and make it an obligatory field if the Maneuver section is included. |  |
| 6-14 | Table 6-6 | N/A | ed/te | MNVR\_STOP: Elsewhere in this document (and in the ADM), we have used "MAN" as the abbreviation for maneuver. | David S. Berry / NASA | From: "MNVR\_STOP"To: "MAN\_STOP" |  |
| 6-15 |  6.2.7.2 | 2 | ed/te | Word choice... "are only allowed if" | David S. Berry / NASA | From: "are only allowed if"To: "shall appear only if" |  |
| 6-15 |  6.2.7.2 | 2 | ed/te | Seems like a desire to change reference frame and/or orbit center could also trigger a requirement for a new orbit state time history. | David S. Berry / NASA | Consider adding reference frame and center to the list of factors that trigger an additional orbit state time history representation. |  |
| 6-15 | 6.2.7.3 | 1 | ed/te | Word choice... | David S. Berry / NASA | From: "...are encased..."To: "... shall be encased..." |  |
| 6-15 | 6.2.7.4 | 1 | ed/te | Word choice... | David S. Berry / NASA | From: "...are encased..."To: "... shall be encased..." |  |
| 6-15 | 6.2.7.5 | 2+ | te | The convention used here to preclude interpolation is different than that used in the OEM, specifically, the OEM prohibits duplicate timestamps, and does not interpolate across "segments". | David S. Berry / NASA | Consider desirability of consistency between the OEM and OHM architecture. |  |
| 6-15 | 6.2.7.6 | All | te | Comments are prohibited in the OEM data section, except right at the beginning. | David S. Berry / NASA | Consider desirability of consistency between the OEM and OHM architecture. |  |
| 6-15 | 6.2.7.7 | All | te | I would re-word this section such that the word "may" is used rather than "no requirement". | David S. Berry / NASA | From: existing.To: Time deltas between consecutive orbit states may be uniform or non-uniform. Orbit state time tags may or may not match those of maneuver and covariance time histories. (Maybe this should be two separate requirements?) |  |
| 6-16 | 6.2.7.10 | 2 | ed/te | I don't know how this "requirement" can be enforced operationally... I think it falls into the category of guidance, and thus I think "shall" should be replaced with "should". | David S. Berry / NASA | From: "...shall be chosen..."To: "...should be chosen..." |  |
| 6-16 | Table 6-7 | N/A | te | ORB\_TYPE: Having a default of this type essentially makes it a required field. | David S. Berry / NASA | Remove the statement about default value and make it an obligatory field if the Orbit State Time History section is included. |  |
| 6-16 | Table 6-7 | N/A | te | ORB\_TYPE: Refers reader to Table A3. | David S. Berry / NASA | From: Table A3To: Table A4 |  |
| 6-16 | Table 6-7 | N/A | te | BASIS: Having a default of this type essentially makes it a required field. | David S. Berry / NASA | Remove the statement about default value and make it an obligatory field if the Orbit State Time History section is included, with a normative set of 2 values. |  |
| 6-16 | Table 6-7 | N/A | te | MEAN\_ELEMENTS: Having a default of this type essentially makes it a required field. | David S. Berry / NASA | Remove the statement about default value and make it an obligatory field if the Orbit State Time History section is included, with a normative set of 2 values. |  |
| 6-16 | Table 6-7 | All | te | Comments are prohibited in the OEM data section, except right at the beginning. | David S. Berry / NASA | Consider desirability of consistency between the OEM and OHM architecture. |  |
| 6-16 | Table 6-7 | N/A | te | CENTER\_NAME: Having a default of this type essentially makes it a required field. | David S. Berry / NASA | Remove the statement about default value and make it an obligatory field if the Orbit State Time History section is included. |  |
| 6-16 | Table 6-7 | N/A | te | ORB\_REF\_FRAME: Having a default of this type essentially makes it a required field. | David S. Berry / NASA | Remove the statement about default value and make it an obligatory field if the Orbit State Time History section is included. |  |
| 6-17 | Table 6-7 | N/A | te | ORB\_N: I think this keyword is not necessary, and also possibly dangerously ambiguous. In order for this to be useful, it would be necessary to have additional information either on the value of this keyword or on another keyword (i.e., it is necessary to identify which elements are NOT present in the orbit state). | David S. Berry / NASA | Delete this keyword. |  |
| 6-17 |  6.2.8.2 | 2 | ed/te | Word choice... "are only allowed if" | David S. Berry / NASA | From: "are only allowed if"To: "shall appear only if" |  |
| 6-17 | 6.2.8.3 | 2 | te | For consistency with the OEM, the COVAR\_START and COVAR\_STOP should be COVARIANCE\_START and COVARIANCE\_STOP respectively. | David S. Berry / NASA | Change keywords for consistency with existing standard message. |  |
| 6-17 | 6.2.8.3 | last | ed/te | Word choice (since none of the keywords is in both tables) | David S. Berry / NASA | From: Tables A4 and A5To: Tables A4 or A5 |  |
| 6-17 | 6.2.8.5 | 2 | te | Word choice | David S. Berry / NASA | From: "...message creator can..."To: "...message creator may..." |  |
| 6-17 | 6.2.8.5 | 3 | ed/te | Refers to "exactly two adjacent lines" but in the case of the covariance the time stamps are not on adjacent lines. | David S. Berry / NASA | Re-word to take into account that the covariance time stamps are separated by some number of matrix lines. |  |
| 6-18 | 6.2.8.6 | 1 | te | Word choice. | David S. Berry / NASA | From: "...it is recommended that those events..."To: "...those events should..." |  |
| 6-18 | 6.2.8.6 | 2 | te | The specified placement of comments could be problematic. | David S. Berry / NASA | We should discuss OHM comment style at Darmstadt. |  |
| 6-18 | 6.2.8.7 | All | te | I would re-word this section such that the word "may" is used rather than "no requirement". | David S. Berry / NASA | From: existing.To: Time deltas between consecutive covariance matrices may be uniform or non-uniform. Covariance matrix time tags may or may not match those of maneuver and orbit state time histories. (Maybe this should be two separate requirements?) |  |
| 6-18 | 6.2.8.9 | 3 | ed | Refers to the "COVAR" keyword, but I think you mean "COV\_TYPE" | David S. Berry / NASA | From: COVARTo: COV\_TYPE |  |
| 6-18 | 6.2.8.9 | 4 | te | Missing "shall" | David S. Berry / NASA | From: "...covariance matrix contain from one..."To: "...covariance matrix shall contain from one..." |  |
| 6-18 | 6.2.8.11 | 4 | ed | Missing closing parenthesis | David S. Berry / NASA | Add closing parenthesis at end of "for example..." clause. |  |
| 6-18 | 6.2.8.12 | 2 | ed/te | I don't know how this "requirement" can be enforced operationally... I think it falls into the category of guidance, and thus I think "shall" should be replaced with "should". | David S. Berry / NASA | From: "...shall be chosen..."To: "...should be chosen..." |  |
| 6-18 | 6.2.8.13 | 2 | te | Parenthetical remark regarding "REF\_FRAME" keyword should use "COV\_REF\_FRAME" in the first instance. | David S. Berry / NASA | From: "REF\_FRAME keyword if used"To: "COV\_REF\_FRAME keyword if used" |  |
| 6-19 | Table 6-8 | N/A | te | COV\_TYPE: Having a default of this type essentially makes it a required field. | David S. Berry / NASA | Remove the statement about default value and make it an obligatory field if the Covariance section is included. |  |
| 6-19 | Table 6-8 | N/A | ed/te | COMMENT: There is a long history of issues with COMMENTs in the Nav WG messages. It is suggested that the conventions established elsewhere in the ODM be continued. Allowing comments as stated effectively eliminates the ability to create an XML instantiation of the OHM that can be validated against a schema. | David S. Berry / NASA | Consider allowing COMMENT placement only immedately after the start of the logical block. |  |
| 6-19 | Table 6-8 | N/A | te | COV\_REF\_FRAME: The assignment of a default here if the keyword is not specified contradicts the intent of 6.2.8.13. | David S. Berry / NASA | Remove the assignment of a default COV\_REF\_FRAME |  |
| 6-19 | Table 6-8 | N/A | te | COV\_N: I think there are a couple of issues with this keyword. First, according to the COVAR\_NNXNN specification in Table A5, it shouldn't be necessary (redundant with the value of the COV\_TYPE keyword. Second, the notion of overriding the number of elements in one of the many other covariance matrix types is suspect... how would one indicate which of the (n\*\*2+n)/2 elements is overridden? | David S. Berry / NASA | Delete this keyword. |  |
| 6-19 | 6.2.9.1 | 1 | ed | Refers to Table 6-8, but I think this should be 6-9 since Table 6-8 is defined in the previous section. | David S. Berry / NASA | From: Table 6-8To: Table 6-9 |  |
| 6-19 | 6.2.9.2 | 2 | ed/te | Word choice... "are only allowed if" | David S. Berry / NASA | From: "are only allowed if"To: "shall appear only if" |  |
| 6-20 | 6.2.9.3 | last | ed/te | Word choice (since none of the keywords is in both tables) | David S. Berry / NASA | From: Tables A4 and A5To: Tables A4 or A5 |  |
| 6-20 | 6.2.9.5 | 2 | ed | Word choice... "message creator can" | David S. Berry / NASA | From: "message creator can"To: "message creator may" |  |
| 6-20 | 6.2.9.6 | 3 | ed | Punctuation at the end of the section is inconclusive... comma followed by space and a period could indicate either a punctuation error or an incomplete thought. | David S. Berry / NASA | Correct as applicable. |  |
| 6-20 | 6.2.9.7 | 1 | te | Word choice. | David S. Berry / NASA | From: "...it is recommended that those events..."To: "...those events should..." |  |
| 6-20 | 6.2.9.7 | 2 | te | The specified placement of comments could be problematic. | David S. Berry / NASA | We should discuss OHM comment style at Darmstadt. |  |
| 6-20 | 6.2.9.8 | All | te | I would re-word this section such that the word "may" is used rather than "no requirement". | David S. Berry / NASA | From: existing.To: Time deltas between consecutive state transition matrices may be uniform or non-uniform. State transition matrix time tags may or may not match those of maneuver and orbit state time histories. (Maybe this should be two separate requirements?) |  |
| 6-20 | 6.2.9.12 | 5 | ed | Missing closing parenthesis | David S. Berry / NASA | Add closing parenthesis at end of "for example..." clause. |  |
| 6-21 | 6.2.9.13 | 2 | ed/te | I don't know how this "requirement" can be enforced operationally... I think it falls into the category of guidance, and thus I think "shall" should be replaced with "should". | David S. Berry / NASA | From: "...shall be chosen..."To: "...should be chosen..." |  |
| 6-21 | 6.2.9.13 | 3 | ed/te | Other requirements related to "best practice" have a reference to [G8]. Should there be one here too? | David S. Berry / NASA | Consider. |  |
| 6-21 | 6.2.9.14 | 1 | ed | Typo | David S. Berry / NASA | From: matrixxTo: matrix |  |
| 6-21 | 6.2.9.14 | 2 | te | Parenthetical remark regarding "REF\_FRAME" keyword should use "STM\_REF\_FRAME" in the first instance. | David S. Berry / NASA | From: "REF\_FRAME keyword if used"To: "STM\_REF\_FRAME keyword if used" |  |
| 6-21 | 6.2.9.14 | 5 | ed | Typo... a back slash after the concluding period. | David S. Berry / NASA | Remove back slash. |  |
| 6-22 | Table 6-8 | N/A | ed | This table should be 6-9, since Table 6-8 has already been presented above. | David S. Berry / NASA | Correct table numbering |  |
| 6-22 | Table 6-9 (labeled 6-8) | N/A | te | STM\_TYPE: Having a default of this type essentially makes it a required field. | David S. Berry / NASA | Remove the statement about default value and make it an obligatory field if the State Transition Matrix section is included. |  |
| 6-22 | Table 6-9 (labeled 6-8) | N/A | ed/te | COMMENT: There is a long history of issues with COMMENTs in the Nav WG messages. It is suggested that the conventions established elsewhere in the ODM be continued. Allowing comments as stated effectively eliminates the ability to create an XML instantiation of the OHM that can be validated against a schema. | David S. Berry / NASA | Consider allowing COMMENT placement only immedately after the start of the logical block. |  |
| 6-22 | Table 6-9 (labeled 6-8) | N/A | te | STM\_REF\_FRAME: The assignment of a default here if the keyword is not specified contradicts the intent of 6.2.9.14 | David S. Berry / NASA | Remove the assignment of a default STM\_REF\_FRAME |  |
| 6-22 | Table 6-9 (labeled 6-8) | N/A | te | STM\_N: I think this keyword is ambiguous. In order for this to be useful, it would be necessary to have additional information either on the value of this keyword or on another keyword (i.e., it is necessary to identify which elements are NOT present in the state transition matrix). | David S. Berry / NASA | Delete this keyword. |  |
| 6-22 | 6.2.10.1 | 1 | ed/te | Word choice. | David S. Berry / NASA | From: "is allowed"To: "may be provided if necessary or desirable" or something like that. NOTE: We should make the same change in 3.2.4.11 (DSB error). |  |
| 6-22 | 6.2.10.2 | 1, 2 | ed | Table reference in error | David S. Berry / NASA | From: Table 6-9To: Table 6-10 |  |
| 6-23 | Table 6-10 (labeled 6-8) | N/A | te | COMMENT: The specified placement of comments could be problematic. | David S. Berry / NASA | We should discuss OHM comment style at Darmstadt. |  |
| 6-24 | 6.3 | N/A | te | Should we have an example with a State Transition Matrix? | David S. Berry / NASA | Consider |  |
| A-1 | Opening paragraph | N/A | ed | Does not mention the OHM keywords to which this annex applies. | David S. Berry / NASA | Update to include OHM related keywords and information. |  |
| A-1 | MJD1 MJDTT | N/A | te | Since the WG previously elected to remove the Julian date from the ODM, we should discuss why it is desirable to add it back. | David S. Berry / NASA | Discuss at Darmstadt |  |
| A-1A-2 | MET/MRT | All | te | This discussion (and the relevant TIME\_SYSTEM values) could conceivably be deleted from the standard if EPOCH\_TZERO is in fact added. Alternatively, it may be desirable to use MET/MRT instead of EPOCH\_TZERO. | David S. Berry / NASA | Discuss at Darmstadt |  |
| A-3 | A2 | All | te | I would estimate that about 50% of the discussions in the development of the CDM related to reference frames. There was a strong element that pushed for a single standard reference frame, but it was impossible to agree on that ONE. Utlimately 3 was the minimum set for which agreement could be achieved. I have been wondering since whether or not a similar discussion might occur during revision of the ODM. | David S. Berry / NASA | Discuss at Darmstadt. |  |
| D-2 | All | All | te | Given that most of the data in this "Checklist ICD" are provided in the OHM, I wonder if this annex is even necessary anymore (it was added as a compromise for ODM B-2 when the discussion of adding all these data fields was previously discussed and found unnecessarily excessive. | David S. Berry / NASA | Discuss removing this annex at Darmstadt. |  |