| **Page** | **Section** | **Line** | **Type** | **Comment/ Rationale** | **Source of Comment (Name/Agency)** | **Suggested Disposition** | **Disposition****(Completed by Principal Editor)** |
| --- | --- | --- | --- | --- | --- | --- | --- |
| 1-1 | 1.1 | Bul1 | te | Does the word “tracking” in the statement “preflight planning for tracking or attitude estimation support” refer to a contact with a communications asset or to metric tracking data?  | C. Gramling/NASA-GSFC | Clarify the intended meaning of the word. If for a comm contact, then consider using “preflight planning for a communications contact or...”; if for resolving/processing metric tracking data, consider using “preflight planning to predict metric tracking data or ...” |  |
| 1-1 | 1.2 | 8 | Ed | This is the first instance of the acronym “ICD”, but its meaning is not defined with it. | C. Gramling/NASA-GSFC | Change FROM: “should be specified in an ICD or by...” TO: “should be specified in an Interface Control Document (ICD) or by...”  |  |
| 1-2 | 1.3 | 406 | Te | The paragraph gives an interpretation for the word “nutation” as “precession”. However, for the SANA glossary definitions The Nav WG elected to define the terms nutation and precession as separate motions. | C. Gramling/NASA-GSFC | Consider the ramifications, if any, of the explicit definitions the Nav WG agreed upon for SANA, compared to the usage of the term currently given in the ADM. |  |
| 1-2 | 1.4 | 1-3 | Ed | The sentence describing the contents of Section 2 does not mention the ACM, for which an overview is given in Sec 2. Just a correctable oversight. | C. Gramling/NASA-GSFC | Please update the description for Section 2 to include the Attitude Comprehensive Message (ACM). |  |
| 1-4 | 1.5 | 3 | Ed | The “NOTE:” that states a list of informative references can be found in ANNEX H is redundant with the description of ANNEX H content is the previous section. | C. Gramling/NASA-GSFC | Consider removing the NOTE content from Section 1.5. |  |
| 2-1 | 2.2 | 4 | Ed | Missing a comma between the section number and the section title. | C. Gramling/NASA-GSFC | Consider changing FROM: “see 2.3, Attitude Ephemeris Message and 2.4 Attitude Comprehensive Message)” TO: “see 2.3, Attitude Ephemeris Message and 2.4, Attitude Comprehensive Message)” |  |
| 2-1 | 2.2 | P2, lines 4-6 | ge | RE: Para 2: “if local orbital frames are specified, then an APM must be accompanied by a corresponding Orbit Parameter Message (reference [7] )”. Is it limited to an OPM (because it’s a single vector state?) or could it be an OCM? Granted, the OCM is not published yet, so maybe best to stick w an OPM. | C. Gramling/NASA-GSFC | Advisory/Info, only: Consider if an OCM, when published, would work. |  |
| 2-1 | 2.2 | P3, Lines 1-2 | ge | RE: Para 3: “Note that an Orbit Parameter Message (OPM) is needed for proper solar radiation pressure modeling.” Is it limited to an OPM (because it’s a single vector state?) or could it be an OCM? Granted, the OCM is not published yet, so maybe best to stick w an OPM. | C. Gramling/NASA-GSFC | Advisory/Info, only: Consider if an OCM, when published, would work. |  |
| 2-2 | 2.3 | P3, lines 2-3 | Ge | RE: Para 3: “If local orbital reference frames are specified, then an AEM must be used in conjunction with an Orbit Ephemeris Message (reference [7] )”. Is it limited to an OEM, or could it be an OCM? (Recognizing the OCM is not yet published.) | C. Gramling/NASA-GSFC | Advisory/Info, only: Consider if an OCM, when published, would work. |  |
| 2-2 | 2.4 | P3, lines 2-3 | Ge | RE: Para 3: “If local orbital reference frames are specified, then an ACM must be used in conjunction with an Orbit Ephemeris Message (reference [7] )”. Is it limited to an OEM, or could it be an OCM? (Recognizing the OCM is not yet published.) | C. Gramling/NASA-GSFC | Advisory/Info, only: Consider if an OCM, when published, would work. |  |
| 3-1 | 3.1 | P2, line 2 | Te | RE: “The use of the APM shall be applicable under the following conditions: * –  an attitude propagator shall be available at the receiver’s location;”

Isn’t it possible that a recipient may just want the attitude at a specific time and has no need/desire to propagate the attitude state? Is it necessary that availability of a propagator is a requirement, per the “shall” statement? | C. Gramling/NASA-GSFC | Consider re-wording so an attitude propagator is not required by the recipient of an APM. |  |
| 3-1 | 3.1 | P4, line 3 | Ed | No need to spell out what an ICD is here; should occur earlier in the document (see comment above from this reviewer). (acronym even appears in previous paragraph) | C. Gramling/NASA-GSFC | Change FROM: “documented in an Interface Control Document (ICD).” TO: “documented in an ICD.” |  |
| 3-2 | 3.2.2 | P1 on the page | ge | This paragraph deals with the version number. While indeed version 1.0 is the original APM, this document is for version 2.0. Wording in the paragraph should reflect the updated version info. I’m not sure if its necessary to include any info about Version 1 since it will become “Silver”, right? | C. Gramling/NASA-GSFC | Consider updating the Version numbers and usage. |  |
| 3-3 | 3.2.3 | All | Ed | There are formatting differences in this section; not all alphabetized text is aligned | C. Gramling/NASA-GSFC | Consider fixing the formatting, if possible. |  |
| 3-4 | Tab 3-2 | Content Row5 | te | TIME\_SYSTEM refers to annex B. Should this refer to SANA instead, and content removed from annex B? | C. Gramling/NASA-GSFC | Please refer to Nav WG decision on use of SANA for consistency among messages and update text in Table 3-2 accordingly. |  |
| All | All | All | Ge | Sections and Annexes are typed differently throughout the document. Sometimes first-letter-capitalized, sometimes all lowercase, sometimes all caps.  | C. Gramling/NASA-GSFC | Please consider use of consistent formatting throughout the doc. |  |
| 3-5 to 3-6 | Table 3-3 | throughout | te | Should the descriptions for REF\_FRAME\_x refer to Annex B or to SANA? | C. Gramling/NASA-GSFC | Please refer to Nav WG decision on use of SANA for consistency among messages and update text in Table 3-3 accordingly. |  |
| 3-5 | Table 3-3 | Content Rows 3-6 | ed | Nav Data Messages Definitions and Conventions document and SANA use phi, Ø, to represent the rotation angle, but the APM uses theta, θ. | C. Gramling/NASA-GSFC | Please consider updating the APM to use phi as the Euler rotation angle. |  |
| 3-5 to 3-6 | Table 3-3 | Throughout | Ed | Each description for REF\_FRAME\_B in the table states “Name of the reference frame that defines the starting point of the transformation.”. Shouldn’t this be the frame of the ***ending*** point of the transformation? I think this is just a copy paste error. | C. Gramling/NASA-GSFC | Please correct as needed. |  |
| 3-6 | Table 3-3 | Content Row 15 | Te | Under the Spin block, should there be a REF\_FRAME\_B? Is there actually a transformation needed in this block, or just a single definition of a ref frame for the definition of the spin vector/axis?  | C. Gramling/NASA-GSFC | I’m not an attitude person, so maybe I am not thinking about this correctly, so, please consider the comment and correct if needed. |  |
| 3-6 | Table 3-3 | SpinBlock  | Te | Consider the comment above from this reviewer on nutation and precession definitions the Nav WG agreed upon. Are entries needed to define precession? | C. Gramling/NASA-GSFC | Consider whether precession needs to be included separately, and update if necessary. |  |
| 3-7 | Table 3-3 | Maneuver Block, row 5 | te | Should the description for MAN\_REF\_FRAME refer to Annex B or to SANA? | C. Gramling/NASA-GSFC | Please refer to Nav WG decision on use of SANA for consistency among messages and update text in Table 3-3 accordingly. |  |
| 3-8 | 3.2.5.2 | 2 | te | RE: “An approach to this is to add a ‘COMMENT’ block specifying a particular OPM message to use in conjunction with a particular APM. “ Why not include an optional keyword for a user to define a reference message, ORB\_REF\_MSG or similar, associated w the APM?  | C. Gramling/NASA-GSFC | Consider explicitly offering users of the ADM standard a keyword to define a relevant orbit message (OPM for now, but eventually could be OCM)? |  |
| 3-x | 3 | all | ge | I noticed the example messages provide values in different formats. Does the APM purposefully not identify the type of number for each of the keyword values to be reported, like signed Real, signed Integer, etc? Is it stated this should be defined in an ICD and I just didn’t notice that?  | C. Gramling/NASA-GSFC | Just a question. |  |