| **Page** | **Section** | **Line** | **Type** | **Comment/ Rationale** | **Source of Comment (Name/Agency)** | **Suggested Disposition** | **Disposition****(Completed by Principal Editor)** |
| --- | --- | --- | --- | --- | --- | --- | --- |
| N/A | N/A | N/A | N/A | ALL PAGE/SECTION/LINE NUMBERS RELATIVE TO "CHANGES ACCEPTED" VERSION | David S. Berry / NASA | N/A |  |
| 1-1 | 1.3 | (f) | ed | Refers to "Annex B" being a "Glossary of Terms", but Annex B has been removed. | David S. Berry / NASA | Rewrite sentence to remove reference to Annex B: "Annex A is a listing of Acronyms." |  |
| 1-3 | 1.4 |  | ed | There are two references labelled "[23]". The first is in the proper sequence, the second appears between [24] and [26], implying it should be "[25]" | David S. Berry / NASA | From: [23]To: [25] |  |
| 2-6 | 2.3 |  | ed | Definitive definition... you may want to add "State" after "Definitive" so it will match the submission of new terms for the SANA Glossary. | David S. Berry / NASA | From: DefinitiveTo: Definitive State |  |
| 2-6 | 2.3 |  | ed | Predictive definition... you may want to add "State" after "Predictive " so it will match the submission of new terms for the SANA Glossary. | David S. Berry / NASA | From: Predictive To: Predictive State |  |
| 2-6 | 2.3 |  | ed | In the definition of "Absolute State", the word "Absolute" is bold and "State" is not. | David S. Berry / NASA | Bold the word "State" also. |  |
| 2-6 | 2.3 |  | ed | In the definition of "Absolute State", there is a stricken "~~a state solution~~"  | David S. Berry / NASA | Remove "~~a state solution~~"... this appears to have been the intent. |  |
| 2-6 | 2.3 |  | ed | In the definition of "Relative State", the word "Relative" is bold and "State" is not. | David S. Berry / NASA | Bold the word "State" also. |  |
| 2-6 | 2.3 |  | ed | In the definition of "Relative State", there is a stricken "~~a state solution~~"  | David S. Berry / NASA | Remove "~~a state solution~~"... this appears to have been the intent. |  |
| 3-8 | Table 3-2 |  | ed | "Pressure" entry. There is an MS Word reviewing comment in the "Alternate Units" column still present (these don't go away when tracked changes are accepted). | David S. Berry / NASA | Open the "Reviewing" pane and delete the comment. |  |
| 3-8 | Table 3-3 |  | ed | I think we discussed removing this Table at Mountain View, or at least removing the "Units" column (which wouldn't be reflected in this version of the document). | David S. Berry / NASA | Just a reminder. |  |
| 4-1 | 4.3.1 | 2 | ed | Refers to https://sanaregistry.org/r/reference\_frames , which changed | David S. Berry / NASA | From: "/r/reference\_frames"To: "/r/celestial\_body\_reference\_frames" |  |
| 4-1 | 4.3.1 | 2 | ed/te | States that https://sanaregistry.org/r/orbit\_centers "contains a complete definition of object-centric orbit reference frames", but that SANA registry doesn't really address reference frames per se, just potential frame origins. | David S. Berry / NASA | From: "...object-centric orbit reference frames"To: "...object-centric reference frame origins", or maybe just "... object-centric frame origins". |  |
| 4-1 | 4.3.1 | all | ed | Has ragged right boundary. | David S. Berry / NASA | Use the "Justify" button to align each line on the right margin. |  |
| 4-2 | 4.3.3.2 | 6 | ed | Subject/verb agreement | David S. Berry / NASA | From: "... their orbit plane"To: "... their orbit planes" |  |
| 4-4 | 4.3.5.2 |  | ed | Message "Error! Reference source not found." is shown | David S. Berry / NASA | Correct the error by deleting the existing "figure 4-1 Error! Reference source not found.", then deleting the review comment that appears in the caption of figure 4-1, and finally insert a new cross reference to figure 4-1. |  |
| 4-4 | 4.3.5.2 | 4 | ed | In the equation, the first time argument is not italicized, but the other two are. In Figure 4-1 on page 4-5, all the time arguments are itialicized (i.e. (*t*) instead of (t)) | David S. Berry / NASA | From: (t)To: (*t*) |  |
| 4-5 | 4.3.5.2 |  |  | Note regarding the review comment on the caption for Figure 4-1, which asks: "Source of figure?". The text below the figure says "Details for these transformations are contained in reference [1]." ([1] is the IERS Technical Note 36). So I looked in that reference for the figure, but there is no figure to be found. A figure similar to this has been in versions of the Green Book back to version 1, which has a similar statement about the details of the transformations and the reference (IERS Technical Note 21). I looked there, and there is no figure. My assumption therefore is that someone in the Navigation WG at the time (before June 2001) created the diagram based on the equations in the IERS Technical Note. The general shape of the figure was triangular at the time (transformations between ICRS, ITRS, and TOD), and remained that way through version G2.10 in 10/2008. Between G2.10 and G2.11 in 10/2009, the shape of the diagram changed to the current square shape, with added transformations to GTOD. I found an email from Chuck Bennett (JSC) that contains the re-drawing of the diagram. So... it appears to me that the source of the diagram is someone in the Nav WG that dug through the equations in the IERS Technical Note and summarized them via the diagram. | David S. Berry / NASA | None. |  |
| 4-5 | 4.3.5.2 |  | ed/te | There is a matrix missing below Figure 4-1 that appears to have been inadvertently deleted (rate of change of the Earth Rotation Transformation Matrix $dΘ(t)/dt$ ). | David S. Berry / NASA | Restore the missing matrix. |  |
| 4-12 | 4.4.2.2.7 | last | ed | Reference number error | David S. Berry / NASA | From: [23]To: [25] |  |
| 4-12 | 4.4.2.3.1 | Title | ed | Consistency. Barycentric Dynamical Time is the only time scale in which the acronym (in this case, "TDB") is given in the section title. In all other time scales, the acronym is not in the title. | David S. Berry / NASA | Remove "(TDB)" from the section title. Alternatively, add the acronym to the other 8 time scales discussed in the section. |  |
| 4-13 | 4.4.2.3.2 and 4.4.2.4 |  | ed/te | In line 3 on the page, "TCB - TDB $≈$ 0.489seconds/year \* (year-1977.0)". In Figure 4-6, the last line in the "Dynamical Time" section says "TCB = TDB + 46.7 s/cy \* (year-1977.0)" (so this has an increasing difference of 0.467 seconds/year). In trying to understand this editorial difference, it appears that the 046.7 s/cy is based on using a different scaling factor LC = 1.48082686741 x 10-8 which is the scaling factor for d(TCB)/d(TCG). | David S. Berry / NASA | (1) add space between 0.489 and seconds(2) Not sure what to do about this one, but it looks like either a wrong constant was used OR a wrong time scale acronym in the diagram. I tend to think the wrong constant since the TCB conversion to TDB is fixed rate, where as the TCB conversion to TCG is not. |  |
| 4-14 | 4.7.1 | para2, line 2 | ed | Missing Oxford comma | David S. Berry / NASA | From: "The center, pole and equatorial plane..."To: "The center, pole**,** and equatorial plane..." |  |
| 4-16 | 4.8.1 | all | ed | Has ragged right boundary. | David S. Berry / NASA | Use the "Justify" button to align each line on the right margin. |  |
| 5-1 | Table 5-1 |  | ed | Consistency. First line in Hardware section has two comma-separated properties on the same line... it is the only entry in the table that has two properties on same line. | David S. Berry / NASA | Remove comma between "Solar Panel Area" and "Bus and Payload Area", and put them on separate lines in the table cell. |  |
| 5-2 | 5.2.2.1 | 2 | ed | Font consistency: The phrase "called 'orbital elements'" is in Arial font. | David S. Berry / NASA | Change to Times New Roman |  |
| 5-3 | 5.2.2.4 | NOTE | ed | Customarily used comma missing. | David S. Berry / NASA | From: "(e.g. e=1)"To: "(e.g.**,** e=1)" |  |
| 5-11 | 5.3.5 | para 4 | ed | Just before the inertia matrix, the use of "where," is unique in the document, and the comma is unnecessary. | David S. Berry / NASA | From: "where, I is known..."To: "where I is known..." |  |
| 5-11 | 5.3.5 | para5 | ed | In the set of integrals that make up the terms of the inertia matrix, I suggest adding a space between the end of the integrand and the differential.  | David S. Berry / NASA | For example:From: (y2+z2)dmTo: (y2+z2) dm |  |
| 5-12 | 5.3.5 | between 5 & 6 | ed/te | Missing equation | David S. Berry / NASA | Add equation T= (mv2)/2 |  |
| 5-12  | 5.3.5 | 9 | ed | Missing space between "about" and "$\hat{P}$" | David S. Berry / NASA | From: "... rotates about$\hat{P}$."To: "... rotates about $\hat{P}$." |  |
| 5-14 | 5.5.3 |  | ed | In AD the units are given without the superscript. | David S. Berry / NASA | From: m2To: m2 |  |
| A-1 (6-1) | 6.1 | 4 | ed | The list of references has a missing first entry judging by the comma. In looking at the tracked changes version, it looks like reference [6] was inadvertently deleted (?). I think reference [7] may not apply to this section of the document.  | David S. Berry / NASA | From: "references , [7], [14]..."To: "references [6], [14]..." |  |
| A-2(6-2) | 6.2.1.2 | para3 line 1-2 | ed | Superfluous comma | David S. Berry / NASA | From: "... are the actual, values for..."To: "... are the actual values for..." |  |
| A-2(6-2) | 6.2.1.2 | para 3 line 2 | ed | Missing periods in abbreviation. | David S. Berry / NASA | From: "... satellite, ie annual..."To" "... satellite, i.e. annual..." |  |
| A-3(6-3) | 6.2.2.1 | 3 | ed | Missing period at end of sentence. | David S. Berry / NASA | From: "(DRVID)"To" "(DRVID)**.**" |  |
| A-4(6-4) | 6.2.2.3 | 5 | ed | Missing space. | David S. Berry / NASA | From: "...Forward'or uplink...To: "...Forward' or uplink..." |  |
| A-7(6-7) | 6.2.2.5 | 5-6 | ed/te | May want to add a characteristic of the constant, specifically, that if the turnaround ratio uplink multiplier (numerator) is odd, then the turnaround ratio downlink multiplier (denominator) should be even and vice versa to avoid the harmonic interference. | David S. Berry / NASA | Consider. |  |
| A-11(6-11) | 6.2.4 | 8 | ed | Possessive? Seems so, but I'm not completely certain. | David S. Berry / NASA | Consider:From: "the constellations ephemeris"To: "the constellation's ephemeris" |  |
| A-1 thru A-3 | Annex A |  | ed | Candidates for deletion: entry appears only in the Annex, not in the text: GLONASS, MEME, MET, QZSS. | David S. Berry / NASA | Consider deleting from the Annex since they don't appear in the document proper. |  |
| A-1 thru A-3 | Annex A |  | ed | Candidates for addition: acronym appears in text, but not Annex (in some cases, there is a single reference in text, so maybe having an acronym isn't necessary?): BCRS, CG, DRVID, DSST, EOM, FOV, GCRF, GCRS, ICD, ID, MOD, NORAD, PN, RF, RU, SANA, SGP4, TLE, USO, VLBI. | David S. Berry / NASA | Consider adding to the Annex, or, if a single occurrence in text, eliminate need for acronym. |  |