UNCLASSIFIED Change Topic: Clarification of CNAV Broadcast Intervals

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This change package accommodates the text changes to support the proposed solution (see table below) within the public Signals-in-Space (SiS) documents. All comments must be submitted in Comments Resolution Matrix (CRM) form.

The columns in the WAS/IS table following this page are defined below:

Section Number: This number indicates the location of the text change within the document.

Proposed Heading: Contains existing and/or proposed changes to section titles and/or the titles to new sections

(WAS) <Document Title>: Contains the baseline text of the impacted document.

Proposed Object Text: Contains proposed changes to baseline text.

PROBLEM STATEMENT:

The current CNAV/CNAV-2 broadcast intervals tables in IS-GPS-200, IS-GPS-705, and IS-GPS-800 do not clearly convey the separate, distinct characteristics between each type of almanac message data (Reduced Almanac, Midi Almanac) and associated message type numbers (Message Type 31 and 37, respectively); nor do the tables note the operational flexibility retained by AFSPC.

A literal reading of the existing CNAV/CNAV-2 broadcast intervals tables has -- and will likely continue to -- cause the Control Segment to waste valuable CNAV/CNAV-2 throughput broadcasting unnecessary CNAV/CNAV-2 messages.

SOLUTION: (Proposed)

Clarify the differences/separation/options for each CNAV message type/data, message type number, and associated broadcast intervals.

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| Mssage Data | MssageTypeNinber | MaximumBroackast Intervals [†] | |
|--|---|--|-----------------------------|
| Ephemeris | 10&11 | 24sec | N |
| Clack | Туре 30-37 | 24scc | Ephen |
| ISCIONO | 30* | 144 sec | Clock |
| Deduced Alaman | 21*cr 12 | 10 | ISC, IC |
| | 51.0.12 | | Reduce |
| Mdi Almanac | 37 | 60min ^{**} | MđA |
| ECP | 32⁺ | 15 min | |
| UTC | 33* | 144.580 | H.P |
| DiffConection | 34*a 13&14 | 15min*** | UIC |
| CGIO | 35* | 144 sec | Diff G |
| Text | <u>36</u> *α 15 | Asmadad | GGIO |
| | | | Text |
| * Alsocentains SVeloc ** Complete set of SVsi *** When Differential Co † The intervals specific | ek conection parameters in the constellation. mections are available. ed are maximum As such, the broa | ictast intervals may be shorter than the | * ** ** *** *** |

| Table 20-XII. Message Broadcast Intervals | | |
|---|---|---------------------------|
| Message Data | Message Type Number | MaximumBroackast Interval |
| Epheneris | 10&11 | 24 sec |
| Clock | Type 30's | 24 sec |
| ISC, IONO | 30* | 144 sec |
| Reduced Almanac | 31*a 12 | 10 min ^{æs, ære} |
| Mdi Almanac | 37* | 60 min** |
| ROÞ | 32* | 15 nin**** |
| UIC | 33* | 144 sec |
| Diff Correction | 34*ar 13&14 | 15min**** |
| GGIO | 35* | 144 sec**** |
| Text | <i>36</i> *a 15 | As needed**** |
| * Also contains SV c ** Complete set of SV *** When Differential **** Optional (interval a | lock conection parameters. /s in the constellation. Corrections are available. applies if/when broadcast). | |

Rationale

The current CNAV broadcast intervals tables in IS-GPS-200 do not clearly convey the separate, distinct characteristics between each type of almanac message data (Reduced Almanac, Midi Almanac) and associated message type numbers (Message Type 31 and 37, respectively); nor do the tables note the operational flexibility retained by AFSPC.

A literal reading of the existing CNAV/CNAV-2 broadcast intervals tables has -- and will likely continue to -- cause the Control Segment to waste valuable CNAV throughput broadcasting unnecessary CNAV messages.

Message Type 37 includes SV clock correction parameters. Therefore, it should have an asterisk.

The 5 asterisk (*****) note found in the original 13 May 2013 PIRN stating "Either Reduced Almanacs or Midi Almanacs, but not both" note has been deleted as a footnote from IS-GPS-705 since it implies that operators must choose either Reduced or Midi Almanacs and continue to transmit either Reduced or Midi almanacs in favor of the other. There are users who will utilize either the Reduced or Midi Almanacs and do not want to see either type of data cut out of use. Specifically for L5, the FAA would like to see the continued use of Midi Almanacs, thus also the deletion of the 4 asterisk note next to the Midi Almanacs for L5.