

For instructions see the "INSTRUCTIONS" TAB below

| Committer Identification | | Comment Description Fields | | | | | | | ICC Disposition Fields | | | Committer Concurrence Fields | | ICC Concurrence Fields | | | | |
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| (1) COMMENT NO. | (4) COMMITTER NAME | (7) DOC LINE# (if applicable) | (8) PARA # | (9) COMMENT TYPE (C/S/A) | (10) COMMENT | (11) ORIGINAL TEXT (FROM) | (12) SUGGESTED CHANGE (TO) | (13) RATIONALE FOR CHANGE | (20) DISPOSITION - Accept, Accept with Comment, Reject, or Defer | (21) DISPOSITION RATIONAL | (22) FINAL CHANGED TEXT (if not identical to suggested text or no suggestion offered) | (23) COMMITTER CONCURRENCE (Concur or Non Concur) | (24) NON CONCURRENCE RATIONAL (if applicable) | (25) CONCURRENCE METHOD (email, phone, mtg) | (26) DATE CONCURRENCE RECEIVED (mm/dd/yy) | (27) FINAL COMMENT STATUS (Open/Closed) | (28) NOTES | |
| 1 | D. Bouvet | IS200_RFC_403 | 6.4.6.1 | S - Substantive | <p>First criterion of §6.4.6.1 states that "LNAV almanac users should not use signals that appear to be from dummy satellites as defined via a currently broadcast LNAV almanac (see paragraphs 3.2.1)."</p> <p>So far, almanacs were used to identify the available constellation and optimize the acquisition process. This criterion seems to imply that equipment should now monitor the almanacs broadcast by the different SVs tracked, and de-select satellites used in the navigation solution if one of the decoded almanacs says "dummy" for this satellite (despite the fact that the health status broadcast in subframe 1 says HEALTHY).</p> <p>Please clarify the intent of this first criterion: - Option 1: it is meant to help the equipment to select valid satellites in the signal acquisition process (and then the equipment should listen to the Signal Alarm indications to use or not the satellite in the navigation solution) - Option 2: the "dummy" almanac is a new criterion to de-select a SV currently tracked (even if the satellite broadcasts a HEALTHY status in LNAV subframe 1)</p> | | If the first option is the correct one, the sentence should be reworded to reflect that. | | Accept with Comments | Option 1 is the intent. The protocols are presented in order of a typical acquisition sequence. Users should then react to changing indications as they arise. | 1. Constellation Almanac. LNAV almanac users should not attempt to acquire signals that appear to be from dummy satellites as defined via a currently broadcast LNAV almanac (see paragraphs 3.2.1). CNAV almanac users should not attempt to acquire signals that appear to be from satellites for which a CNAV almanac is not currently being broadcast in Message Types 12, 31, and/or 37 (see paragraph 30.3.3.4). | | | | | | | |
| 2 | D. Bouvet | IS200_RFC_403 | 6.4.6.1 | S - Substantive | <p>SV Configuration Code was understood as a way to give to the end user information about the signals actually broadcast by the satellite. In brief, it is useful to optimize signal acquisition.</p> <p>The 2nd criterion listed in §6.4.6.1 saying "Signals not identified as existing by the broadcast SV configuration code (see paragraph 20.3.3.5.1.4) for a satellite should be ignored." could be understood as follows: SV Configuration has now be monitored in real time by the equipment, and the satellite should be de-selected when receiving for instance an SV Configuration Code equal to 000, 110 or 111 (as we don't know which signals are allowed for these values).</p> <p>Can you clarify what is the intent of criterion #2: - require the equipment to monitor SV configuration code and de-select signals if tracked in contradiction with what is stated in the configuration code (which would mean that the health bits broadcast in LNAV subframe 1 are not sufficient anymore to indicate the unavailability of the signals) - indicate to the manufacturers that the SV configuration code can be used to optimize acquisition (by identifying which signals are available on the satellite)</p> | | If the second option is the correct one, the sentence should be reworded to reflect that. | | Accept with Comments | Option 2 is the intent. The protocols are presented in order of a typical acquisition sequence. Users should then react to changing indications as they arise. | 2. SV Configuration Code. Users should not attempt to acquire signals not identified as existing by the broadcast SV configuration code (see paragraph 20.3.3.5.1.4) for a satellite. | | | | | | | |
| 3 | D. Bouvet | IS200_RFC_403 | 6.4.6.1 | S - Substantive | <p>Regarding criterion #4 "CEI Data Set. Signals from a satellite that are indicated as bad by the CEI data set in use from that satellite should be ignored. See paragraph 6.2.9 for a description of the CEI data set. See paragraph 20.3.3.5.1.3 or 30.3.3.1.1.2 for a description of the CEI data set health settings.",</p> <p>it seems that reference to paragraph 20.3.3.3.1.4 should replace reference to paragraph 20.3.3.5.1.3, as according to the SPS PS 2008, the satellite is "Unhealthy" when the MSB of the six-bit health indicator is set to 1.</p> | | | | Accept with Comments | Update reference to 20.3.3.3.1.4 | 4. CEI Data Set. Signals from a satellite that are indicated as bad by the CEI data set in use from that satellite should be ignored. See paragraph 6.2.9 for a description of the CEI data set. See paragraph 20.3.3.3.1.4 or 30.3.3.1.1.2 for a description of the CEI data set health settings. | | | | | | | |
| 4 | D. Bouvet | IS200_RFC_403 | 6.4.6.2.2 | S - Substantive | <p>Formulation of condition (b) seems ambiguous: one could understand that the equipment has to monitor the consistency between IODE and IODC and de-select the satellite from the navigation solution as soon as an IODE/IODC discrepancy is detected and confirmed by a subsequent decoding of SF1, 2 and 3 with the same discrepancy (to filter out normal data set cutover).</p> <p>What is currently done in GPS airborne equipment is to condition the use of a CEI data set to the fact that SF1 IODC 8 LSBs match both SF2 and SF3 IODEs. If, for any reason, the equipment decodes SF1, SF2 and SF3 with inconsistent IODC/IODE, the equipment will use the CEI data set decoded before, until expiration of its validity period. In other words, in contradiction with condition (b), the equipment still uses the satellite even if it broadcasts SF1, 2 and 3 with non-matching IODC/IODE.</p> <p>Can you clarify the intent of condition (b): Option #1: make sure that equipment will not use a CEI data set with non consistent IODE/IODC Option #2: make sure that equipment will not use the satellite in the navigation solution upon reception of a non consistent set of LNAV subframes 1, 2 and 3, confirmed by the reception of a second non consistent set.</p> | | | | Accept with Comments | Discuss at ICWG | | | | | | | | |

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| 5 | D. Bouvet | IS200_RFC_403 | 6.4.6.2.2 | S - Substantive | C/A-code or P(Y)-code signal alarm condition (c) seems to be redundant with alarm condition (e), as replacing all the bits in SF 1, 2 or 3 by ones or by zeros necessarily means that the 8-bit preamble will be different from 10001011. Please consider removing condition (c), unless some bits of SF1, SF2 or SF3 are left to their expected values (preamble for instance). If it's the case, this should be clarified. | | | | Accept with Comments | Discuss at ICWG | | | | | | | |
| 6 | D. Bouvet | IS200_RFC_403 | 6.4.6.2.2 | A - Administrative | CM-code signal alert condition (b): Can you clarify what "being current" means in "The broadcast time of ephemeris (toe) is not current" | | | | Accept with Comments | Discuss at ICWG | | | | | | | |
| 7 | D. Bouvet | IS200_RFC_403 | 6.4.6.2.2 | S - Substantive | CM-code signal alert condition (b): Same comment as before on the IODC/IODE checks: should we understand that the toe/toc has to be monitored: - option 1: to define a consistent CEI data set - option 2: to exclude the satellite upon reception twice of an inconsistent CEI data set, even if the equipment can still use a non-timed out CEI data set decoded before. Please clarify. | | | | Accept with Comments | Discuss at ICWG | | | | | | | |
| 8 | D. Bouvet | IS200_RFC_403 | 6.4.6.2.2 | S - Substantive | CM-code signal alert condition (c): Same comment as before on the IODC/IODE checks: should we understand that the top has to be monitored: - option 1: to define a consistent CEI data set - option 2: to exclude the satellite upon reception twice of an inconsistent CEI data set, even if the equipment can still use a non-timed out (and therefore still valid) CEI data set decoded before. Please clarify. | | | | Accept with Comments | Discuss at ICWG | | | | | | | |
| 9 | D. Bouvet | IS200_RFC_403 | 6.4.6.2.2 | S - Substantive | CM-code signal alert condition (d) seems redundant with condition (e), as replacing all the bits by 0 or 1 means that the preamble will not equal 10001011. Please consider removing condition (d) or clarify which bits are actually replaced by 0s or 1s. | | | | Accept with Comments | Discuss at ICWG | | | | | | | |
| 10 | D. Bouvet | IS705_RFC_403 | 6.4.5.2.2 | S - Substantive | Criterion "The broadcast toe is not current" seems ambiguous. Please clarify what "current" means here. | | If the first option is the correct one, the sentence should be reworded to reflect that. | | Accept with Comments | Discuss at ICWG | | | | | | | |
| 11 | D. Bouvet | IS705_RFC_403 | | S - Substantive | Criterion b) impact on receiver needs some explanations. Clarify whether the equipment is supposed to exclude the satellite when there is a confirmed discrepancy between toc and toe, or simply exclude the CEI data set (and possibly use the satellite with a previously decoded CEI data set with matching toc and toe) | | If the second option is the correct one, the sentence should be reworded to reflect that. | | Accept with Comments | Discuss at ICWG | | | | | | | |
| 12 | D. Bouvet | IS705_RFC_403 | | S - Substantive | For criterion c), clarify whether the equipment is supposed to exclude the satellite when there is a confirmed discrepancy between top associated with CEI having consistent toc/toe, or simply exclude the CEI data set (and possibly use one previously decoded meeting all the validity criteria). | | | | Accept with Comments | Discuss at ICWG | | | | | | | |
| 13 | D. Bouvet | IS705_RFC_403 | | S - Substantive | I5-Code signal alert condition (d) seems redundant with condition (e), as replacing all the bits by 0 or 1 means that the preamble will not equal 10001011. Please consider removing condition (d) or clarify which bits are actually replaced by 0s or 1s (if it's not the entirety of the message) | | | | Accept with Comments | Discuss at ICWG | | | | | | | |
| 14 | D. Bouvet | IS705_RFC_403 | | S - Substantive | It seems that there is no fixed positions in the navigation message for MT 10, 11 and 30s. As such, it does not seem possible to identify whether a message type 10, 11 or 30s has been replaced by 0s or 1s. Please clarify how condition (d) can be detected by an equipment. | | | | Accept with Comments | Discuss at ICWG | | | | | | | |
| 15 | D. Bouvet | IS705_RFC_403 | 6.4.5.3 | S - Substantive | Criteria for "marginal" include URAed or URAned0 index greater than 8. However, IS-GPS-705 also mentions that URAed or URAned0 index equal to -16 means "Use at own risk". Shouldn't URAed or URAned0 equal to -16 be part of the criteria to not use a satellite? | | | | Accept with Comments | Discuss at ICWG | | | | | | | |
| 16 | D. Bouvet | IS705_RFC_403 | 6.4.5.3 | S - Substantive | Criterion for I5 marginal #1 mentions default message replacing MT10, MT11 and M30s. However, it seems that one cannot predict the position of any MT10, 11 or 30s in the CNAV navigation message. Please clarify how the receiver can detect that a default message replaced any MT10, MT11 or MT30s. If not possible, it is suggested to simplify the criterion by conditioning the "marginal" status to the reception of any default message (regardless the message type it replaces). | | | | Accept with Comments | Discuss at ICWG | | | | | | | |

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| 17 | Rhonda Slattery, Karl Kovach | | 705-224, 200-539, 800-251 | C - Critical | Add sentence "These health indication bits only apply to codes and data defined in IS-GPS-200, IS-GPS-705 and IS-GPS-800." Clarify which signals the health applies to. | | | | Accept with Comments | Update definition of health indication bits to apply only to codes and data described in SIS documents. Switch definition of bits (0,1) so that: 0 = Some or all codes and data on this carrier are OK, 1 = All codes and data on this carrier are bad or unavailable | The three, one-bit, health indication in bits 52 through 54 of Message Type 10 refers to the L1, L2, and L5 carrier of the transmitting SV. These health indication bits only apply to codes and data as defined in IS-GPS-200, IS-GPS-705, and IS-GPS-800. The health of each carrier is indicated by: 0 = Some or all codes and data on this carrier are OK, 1 = All codes and data on this carrier are bad or unavailable. | | | | | | | |
| 18 | Rhonda Slattery, Karl Kovach | | 870-266 | S - Substantive | Replace specific bit definition with sentence like 870-260. Easier to maintain configuration control in the future. | | | | Accept with Comments | Update text to reference information located in IS-GPS-200. | The health status of the L1/L2/L5 carrier are defined in section 30.3.3.1.1.2 of IS-GPS-200. | | | | | | | |
| 19 | Rhonda Slattery, Karl Kovach | | 705-224, 200-539, 800-251 | C - Critical | Switch definition of bits to 0 = Some or all codes are OK, 1 = All codes are bad. This is currently the definition in 800-251. There are multiple codes and data on each carrier. It is possible that one of those codes will be set unhealthy, in NSC, have default NAV data or be otherwise unavailable. Users currently use this bit to not look for signals. This causes them to ignore signals they want that are healthy, because a different signal, which they don't care about, is unhealthy. The intent of these bits is that if it is one, users should not look for a signal. If it is zero, they should. An additional sentence could be added like "When the bit is set to zero, and there are multiple signals on a carrier, the user is advised to search for the signal of interest". | | | | Accept with Comments | Update definition of health indication bits to apply only to codes and data described in SIS documents. Switch definition of bits (0,1) so that: 0 = Some or all codes and data on this carrier are OK, 1 = All codes and data on this carrier are bad or unavailable | The three, one-bit, health indication in bits 52 through 54 of Message Type 10 refers to the L1, L2, and L5 carrier of the transmitting SV. These health indication bits only apply to codes and data as defined in IS-GPS-200, IS-GPS-705, and IS-GPS-800. The health of each carrier is indicated by: 0 = Some or all codes and data on this carrier are OK, 1 = All codes and data on this carrier are bad or unavailable. | | | | | | | |
| 20 | Rhonda Slattery, Karl Kovach | | 705-225, 800-251, 200-540 | S - Substantive | Add sentence, after "...does not require that capability". For SVs that do not have any capability, the Operating Command may choose to indicate the SV is "unhealthy". This will allow us to set L5 unhealthy on SVs with no L5 capability, enabling single-frequency L5 operations and test without needing to track L1 C/A or L1 C. Also accounts for dual frequency L1C L5 users until the config code update is implemented. | | | | Accept with Comments | Add further clarification that the Operating Command, at their discretion, may set an SV "unhealthy" is a certain capability does not exist. | The health bit indication shall be given relative to the capabilities of each SV as designated by the configuration code in the LNAV message (see paragraph 20.3.3.5.1.4). Accordingly, any SV which does not have a certain capability will be indicated as "healthy" if the lack of this capability is inherent in its design or if it has been configured into a mode which is normal from a user standpoint and does not require that capability; however, the Operating Command may choose to indicate the SV is "unhealthy". The predicted health data will be updated at the time of upload when a new CEI data set has been built by the CS. Therefore, the transmitted health data may not correspond to the actual health of the transmitting SV. For more information about user protocol for interpreting health indications see paragraph 6.4.6. | | | | | | | |
| 21 | Roger Kirpes | PCN-IS-GPS-200K_RFC403 PCN-IS-GPS-705F_RFC403 | | S - Substantive | For health bits broadcast in CNAV almanac information, RFC-403 is clarifying that "The health bit indication shall be given relative to the capabilities of each SV as designated by the configuration code in the LNAV message (see paragraph 20.3.3.5.1.4)." (see, for example, IS200-540). As SV configuration codes are not currently broadcast in the CNAV formats, this creates a continued dependency for the L5 and/or L2C user on L1 C/A. Instead, new CNAV messages should be created which transmit SV Configuration Codes for all SVs in the constellation. | | Create a new CNAV message which contains SV Configuration Code for all SVs in the constellation. Either create a single message which contains 3x63 = 189 bits for Configuration Codes for all SVs. Or create two messages, for PRNs 1-32 and PRNs 33-63, respectively, which can be combined with clock data. (The message for PRNs 33-63 could be broadcast only when needed). | | Accept with Comments | Already adding SV Configuration to CNAV-2 (L1C), but will clarify as change will not be implemented in the near future. For single frequency users, add sentence to assume all signals are available. | | | | | | | | |
| 22 | Roger Kirpes | PCN-IS-705F_RFC403 | IS705-1599 IS705-1605 IS705-1607 | S - Substantive | These objects should only discuss operational protocols to assist users in interpreting health information for signals/data which are defined in this ICD. | | Discuss only L5 signal health and associated CNAV data in these objects. | | Accept with Comments | Add reference back to IS-GPS-200 and remove sections that do not apply to IS-GPS-705. See also CRM #26 | | | | | | | | |
| 23 | Roger Kirpes | PCN-IS-800F_RFC403 | IS800-1025 IS800-1031 IS800-1033 | S - Substantive | These objects should only discuss operational protocols to assist users in interpreting health information for signals/data which are defined in this ICD. | | Discuss only L1C signal health and associated CNAV-2 data in these objects. | | Accept with Comments | Add reference back to IS-GPS-200 and remove sections that do not apply to IS-GPS-800. See also CRM #28 | | | | | | | | |

