INTERFACE REVISION NOTICE (IRN)

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Affected ICD:	**IRN Number**	**Date:**
IS-GPS-200 Rev H	IRN-IS-200H-005	25-MAY-2017
Authority:	**PIRN Number**	**Date:**
RFC-00312	PIRN-IS-200H-004A	19-MAY-2017

CLASSIFIED BY: N/A
DECLASSIFY ON: N/A

Document Title: Navstar GPS Space Segment / Navigation Interfaces

Reason For Change (Driver): To remove ambiguity in contractor interpretation, the definition of the parameter Time of Predict (T_op) and other timing parameters must be clarified in the GPS technical baseline documentation.

Description of Change: Process RFC via the proposed changes with the correct stakeholders and update the appropriate documentation for accurate implementation.

Prepared By: Amit Patel **Checked By: Huey Nguyenhuu**

AUTHORIZED SIGNATURES	REPRESENTING	DATE
	GPS Directorate Space & Missile Systems Center (SMC) – LAAFB	
See Section XX OR See Next Page	The Boeing Company	
See Section XX OR See Next Page	HQ Air Force Space Command (AFSPC/A5M)	
See Section XX OR See Next Page	Raytheon Company	
See Section XX OR See Next Page	Lockheed Martin Corporation (GPS III)	

Interface Control Contractor:
TASC (GPS SE&I)
An Engility Company
200 N. Sepulveda Blvd., Suite 1800
El Segundo, CA 90245

CODE IDENT 66RP1

INTERFACE REVISION NOTICE (IRN)

Note: Repeat this Signature Page for each document signatory.

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RFC-00312	PIRN-IS-200H-004A	19-MAY-2017

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APPROVED:

With Comments: Yes □ No □

With Exceptions: Yes □ No □

Name of Approving Organization	Authorized Signature	Date

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Interface Control Contractor:
TASC (GPS SE&I)
An Engility Company
200 N. Sepulveda Blvd., Suite 1800
El Segundo, CA 90245

CODE IDENT 66RP1

IS200-1488 :

Section Number :
6.1.0-1

WAS :

AI	-	Availability Indicator
AODO	-	Age of Data Offset
A-S	-	Anti-Spoofing
Autonav	-	Autonomous Navigation
BPSK	-	Bi-Phase Shift Key
CDC	-	Clock Differential Correction
CNAV	-	Civil Navigation
cps	-	cycles per second
CRC	-	Cyclic Redundancy Check
CS	-	Control Segment
DC	-	Differential Correction
dBc	-	Power ratio of a signal to a (unmodulated) carrier signal, expressed in decibels
dBi	-	Decibel with respect to isotropic antenna
dBW	-	Decibel with respect to 1 W
DN	-	Day Number
EAROM	-	Electrically Alterable Read-Only Memory
ECEF	-	Earth-Centered, Earth-Fixed
ECI	-	Earth-Centered, Inertial
EDC	-	Ephemeris Differential Correction
EOE	-	Edge-of-Earth
EOL	-	End of Life
ERD	-	Estimated Range Deviation
FEC	-	Forward Error Correction
GGTO	-	GPS/GNSS Time Offset
GNSS	-	Global Navigation Satellite System

GPS	-	Global Positioning System
GPSW	-	Global Positioning System Wing
HOW	-	Hand-Over Word
ICC	-	Interface Control Contractor
ID	-	Identification
IERS	-	International Earth Rotation and Reference Systems Service
IODC	-	Issue of Data, Clock
IODE	-	Issue of Data, Ephemeris
IRM	-	IERS Reference Meridian
IRP	-	IERS Reference Pole
IS	-	Interface Specification
ISC	-	Inter-Signal Correction
LSB	-	Least Significant Bit
LSF	-	Leap Seconds Future
L2 C	-	L2 Civil Signal
L2 CL	-	L2 Civil-Long Code
L2 CM	-	L2 Civil-Moderate Code
MCS	-	Master Control Station
MSB	-	Most Significant Bit
NAV	-	Navigation
NDUS	-	Nudet Detection User Segment
NMCT	-	Navigation Message Correction Table
NSC	-	Non-Standard C/A-Code
NSCL	-	Non-Standard L2 CL-Code
NSCM	-	Non-Standard L2 CM-Code
NSY	-	Non-Standard Y-code
OBCP	-	On-Board Computer Program
OCS	-	Operational Control System
PPS	-	Precise Positioning Service
PRN	-	Pseudo-Random Noise

RF	-	Radio Frequency
RMS	-	Root Mean Square
SA	-	Selective Availability
SEP	-	Spherical Error Probable
SPS	-	Standard Positioning Service
sps	-	symbols per second
SS	-	Space Segment
SSV	-	Space Service Volume
SV	-	Space Vehicle
SVN	-	Space Vehicle Number
TBD	-	To Be Determined
TBS	-	To Be Supplied
TLM	-	Telemetry
TOW	-	Time Of Week
UE	-	User Equipment
URA	-	User Range Accuracy
URE	-	User Range Error
US	-	User Segment
USNO	-	U.S. Naval Observatory
UTC	-	Coordinated Universal Time
WGS 84	-	World Geodetic System 1984
WN	-	Week Number
WN_e	-	Extended Week Number

Redlines :

AI	-	Availability Indicator
AODO	-	Age of Data Offset
A-S	-	Anti-Spoofing

Autonav	-	Autonomous Navigation
BPSK	-	Bi-Phase Shift Key
CDC	-	Clock Differential Correction
CEI	-	Clock, Ephemeris, Integrity
CNAV	-	Civil Navigation
cps	-	cycles per second
CRC	-	Cyclic Redundancy Check
CS	-	Control Segment
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dBc	-	Power ratio of a signal to a (unmodulated) carrier signal, expressed in decibels
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EAROM	-	Electrically Alterable Read-Only Memory
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IODC	-	Issue of Data, Clock
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MSB	-	Most Significant Bit
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NMCT	-	Navigation Message Correction Table
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NSCL	-	Non-Standard L2 CL-Code
NSCM	-	Non-Standard L2 CM-Code
NSY	-	Non-Standard Y-code
OBCP	-	On-Board Computer Program
OCS	-	Operational Control System
PPS	-	Precise Positioning Service
PRN	-	Pseudo-Random Noise
RF	-	Radio Frequency
RMS	-	Root Mean Square
SA	-	Selective Availability
SEP	-	Spherical Error Probable
SPS	-	Standard Positioning Service
sps	-	symbols per second

SS	-	Space Segment
SSV	-	Space Service Volume
SV	-	Space Vehicle
SVN	-	Space Vehicle Number
TBD	-	To Be Determined
TBS	-	To Be Supplied
TLM	-	Telemetry
TOW	-	Time Of Week
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URA	-	User Range Accuracy
URE	-	User Range Error
US	-	User Segment
USNO	-	U.S. Naval Observatory
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WN	-	Data Sequence Propagation Week Number
WN_e	-	Extended Week Number

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MCS	-	Master Control Station
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NSC	-	Non-Standard C/A-Code
NSCL	-	Non-Standard L2 CL-Code
NSCM	-	Non-Standard L2 CM-Code
NSY	-	Non-Standard Y-code
OBCP	-	On-Board Computer Program
OCS	-	Operational Control System
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PRN	-	Pseudo-Random Noise
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sps	-	symbols per second
SS	-	Space Segment
SSV	-	Space Service Volume
SV	-	Space Vehicle
SVN	-	Space Vehicle Number
TBD	-	To Be Determined
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TLM	-	Telemetry
TOW	-	Time Of Week
UE	-	User Equipment
URA	-	User Range Accuracy
URE	-	User Range Error
US	-	User Segment
USNO	-	U.S. Naval Observatory
UTC	-	Coordinated Universal Time
WGS 84	-	World Geodetic System 1984
WN	-	Data Sequence Propagation Week Number
WN_e	-	Extended Week Number

IS200-1512 :
Insertion after object IS200-1510

Section Number :
6.2.9

WAS :
N/A

Redlines :
Clock, Ephemeris, Integrity (CEI) Data Set.

IS :
Clock, Ephemeris, Integrity (CEI) Data Set.

IS200-1513 :
Insertion below object IS200-1512

Section Number :
6.2.9.1

WAS :
N/A

Redlines :
The Clock, Ephemeris, Integrity (CEI) data set is the collection of SV-specific clock correction polynomial parameters, ephemeris parameters, and related parameters (health flags, URA parameters, time tags, etc.) needed to use the SV's

broadcast signal(s) in the positioning service. The parameters in the CEI data set are explicitly listed in Table 6-I-1. The entire CEI data set is needed for maximum accuracy. However, the core CEI data set (parameters without NOTE1 in Table 6-I-1) is sufficient for an initial position solution. The top term provides the epoch time of week of the state data utilized for the core CEI data set.

IS :
The Clock, Ephemeris, Integrity (CEI) data set is the collection of SV-specific clock correction polynomial parameters, ephemeris parameters, and related parameters (health flags, URA parameters, time tags, etc.) needed to use the SV's broadcast signal(s) in the positioning service. The parameters in the CEI data set are explicitly listed in Table 6-I-1. The entire CEI data set is needed for maximum accuracy. However, the core CEI data set (parameters without NOTE1 in Table 6-I-1) is sufficient for an initial position solution. The top term provides the epoch time of week of the state data utilized for the core CEI data set.

IS200-1648 :
Insertion after object IS200-1513

Section Number :
6.2.9.2

WAS :
N/A

Redlines :
Core CEI Data Set.

IS :
Core CEI Data Set.

IS200-1649 :
Insertion below object IS200-1648

Section Number :
6.2.9.2.1

WAS :
N/A

Redlines :
A Core CEI Data Set are the CEI parameters necessary for a satellite to be used for a position solution (non-almanac); broadcast to users with the shortest broadcast interval -- see Table 30-XII. The top term provides the epoch time of week of the state data utilized for CEI data, except for parameters marked with a Note1 in Table 6-I-1.

IS :
A Core CEI Data Set are the CEI parameters necessary for a satellite to be used for a position solution (non-almanac); broadcast to users with the shortest broadcast interval -- see Table 30-XII. The t_{op} term provides the epoch time of week of the state data utilized for CEI data, except for parameters marked with a Note1 in Table 6-I-1.

IS200-1638 :
Insertion after object IS200-1648

Section Number :
6.2.9.3

WAS :
N/A

Redlines :
Table 6-I-1. CEI Data Set Parameters

IS :
Table 6-I-1. CEI Data Set Parameters

IS200-1639 :
Insertion after object IS200-1638

Section Number :
6.2.9.4

WAS :
N/A

Redlines :

Symbol	Parameter Name	Subframe	Message
SV Health	SV Health (6 bits)	1	N/A
IODC	Issue of Data, Clock	1	N/A
URA	URA Index	1	N/A
WN	Data Sequence Propagation Week Number	1	N/A
WN_n	Week Number	N/A	10
T_{GD}	Group Delay Differential	1	30
a_{f0}	SV Clock Bias Correction Coefficient	1	30-37
a_{f1}	SV Clock Drift Correction Coefficient	1	30-37
a_{f2}	Drift Rate Correction Coefficient	1	30-37
t_{oc}	Time of Clock	1	30-37
$\sqrt{A}$	Square Root of the Semi-Major Axis	2	N/A
Δn	Mean Motion Difference from Computed Value	2	N/A
Fit Interval Flag	Fit Interval Flag	2	N/A
e	Eccentricity	2	10
M_0	Mean Anomaly at Reference Time	2	10
t_{oe}	Time of Ephemeris	2	10, 11
C_{rs}	Amplitude of the Sine Correction Term to the Orbit Radius	2	11
C_{uc}	Amplitude of Cosine Harmonic Correction Term to the Argument of Latitude	2	11

Symbol	Parameter Name	Subframe	Message
C_{us}	Amplitude of Sine Harmonic Correction Term to the Argument of Latitude	2	11
IODE	Issue of Data, Ephemeris	2, 3	N/A
ISF	Integrity Status Flag NOTE1	All	10
ω	Argument of Perigee	3	10
$\dot{\Omega}$	Rate of Right Ascension	3	11
Ω_0	Longitude of Ascending Node of Orbit Plane at Weekly Epoch	3	11
i_0	Inclination Angle at Reference Time	3	11
IDOT, $i_{0\text{-}n}$-DOT	Rate of Inclination Angle	3	11
C_{ic}	Amplitude of the Cosine Harmonic Correction Term to the Angle of Inclination	3	11
C_{is}	Amplitude of the Sine Harmonic Correction Term to the Angle of Inclination	3	11
C_{rc}	Amplitude of the Cosine Harmonic Correction Term to the Orbit Radius	3	11
ΔA	Semi-major Axis Difference at Reference Time	N/A	10
$\dot{A}$	Change Rate in Semi-major Axis	N/A	10
Δn_0	Mean Motion Difference from Computed Value at Reference Time	N/A	10
$\Delta \dot{n_0}$	Rate of Mean Motion Difference from Computed Value	N/A	10
(L1/L2/L5)	Signal Health (3 bits)	N/A	10
URA_{ED}	Elevation Dependent User Range Accuracy	N/A	10
$ISC_{L1C/A}$	Inter-signal Correction	N/A	30
ISC_{L2C}	Inter-signal Correction	N/A	30
ISC_{L5I5}	Inter-signal Correction	N/A	30
ISC_{L5Q5}	Inter-signal Correction	N/A	30
t_{op}	CEI Data Sequence Propagation Time of Week	N/A	10, 30-37
URA_{NED0}	NED Accuracy Index	N/A	30-37
URA_{NED1}	NED Accuracy Change Index	N/A	30-37
URA_{NED2}	NED Accuracy Change Rate Index	N/A	30-37
Alert	Alert Flag NOTE1	All	All
NOTE1: Parameters so indicated are for CEI Refinement – not limited to curve fit. Parameters not indicated are needed for/limited to curve fit. Updates to parameters in table shall prompt changes in t_{oe}/t_{oc} for CNAV and t_{oe}/t_{oc}/IODC/IODE for LNAV. Any parameter marked with NOTE1 may be changed with or without a change in t_{oe}/t_{oc}/IODC/IODE.			

IS :

Symbol	Parameter Name	Subframe	Message
SV Health	SV Health (6 bits)	1	N/A
IODC	Issue of Data, Clock	1	N/A
URA	URA Index	1	N/A
WN	Data Sequence Propagation Week Number	1	N/A
WN_n	Week Number	N/A	10
T_{GD}	Group Delay Differential	1	30
a_{f0}	SV Clock Bias Correction Coefficient	1	30-37
a_{f1}	SV Clock Drift Correction Coefficient	1	30-37
a_{f2}	Drift Rate Correction Coefficient	1	30-37
t_{oc}	Time of Clock	1	30-37
$\sqrt{A}$	Square Root of the Semi-Major Axis	2	N/A
Δn	Mean Motion Difference from Computed Value	2	N/A
Fit Interval Flag	Fit Interval Flag	2	N/A
e	Eccentricity	2	10
M_0	Mean Anomaly at Reference Time	2	10
t_{oe}	Time of Ephemeris	2	10, 11
C_{rs}	Amplitude of the Sine Correction Term to the Orbit Radius	2	11
C_{uc}	Amplitude of Cosine Harmonic Correction Term to the Argument of Latitude	2	11
C_{us}	Amplitude of Sine Harmonic Correction Term to the Argument of Latitude	2	11
IODE	Issue of Data, Ephemeris	2, 3	N/A
ISF	Integrity Status Flag [NOTE1]	All	10
ω	Argument of Perigee	3	10
$\dot{\Omega}$	Rate of Right Ascension	3	11
Ω_0	Longitude of Ascending Node of Orbit Plane at Weekly Epoch	3	11
i_0	Inclination Angle at Reference Time	3	11
IDOT, $i_{0\text{-}n}$-DOT	Rate of Inclination Angle	3	11
C_{ic}	Amplitude of the Cosine Harmonic Correction Term to the Angle of Inclination	3	11
C_{is}	Amplitude of the Sine Harmonic Correction Term to the Angle of Inclination	3	11
C_{rc}	Amplitude of the Cosine Harmonic Correction Term to the Orbit Radius	3	11
ΔA	Semi-major Axis Difference at Reference Time	N/A	10
$\dot{A}$	Change Rate in Semi-major Axis	N/A	10
Δn_0	Mean Motion Difference from Computed Value at Reference Time	N/A	10

Symbol	Parameter Name	Subframe	Message
$\Delta \dot{n}_0$	Rate of Mean Motion Difference from Computed Value	N/A	10
(L1/L2/L5)	Signal Health (3 bits)	N/A	10
URA_{ED}	Elevation Dependent User Range Accuracy	N/A	10
$ISC_{L1C/A}$	Inter-signal Correction	N/A	30
ISC_{L2C}	Inter-signal Correction	N/A	30
ISC_{L5I5}	Inter-signal Correction	N/A	30
ISC_{L5Q5}	Inter-signal Correction	N/A	30
t_{op}	CEI Data Sequence Propagation Time of Week	N/A	10, 30-37
URA_{NED0}	NED Accuracy Index	N/A	30-37
URA_{NED1}	NED Accuracy Change Index	N/A	30-37
URA_{NED2}	NED Accuracy Change Rate Index	N/A	30-37
Alert	Alert Flag NOTE1	All	All
NOTE1: Parameters so indicated are for CEI Refinement – not limited to curve fit. Parameters not indicated are needed for/limited to curve fit. Updates to parameters in table shall prompt changes in t_{oe}/t_{oc} for CNAV and t_{oe}/t_{oc}/IODC/IODE for LNAV. Any parameter marked with NOTE1 may be changed with or without a change in t_{oe}/t_{oc}/IODC/IODE.			

IS200-1514 :
Insertion after object IS200-1512

Section Number :
6.2.10

WAS :
N/A

Redlines :
CEI Data Sequence Propagation.

IS :
CEI Data Sequence Propagation.

IS200-1515 :
Insertion below object IS200-1514

Section Number :
6.2.10.1

WAS :
N/A

Redlines :
A related time-ordered sequence of CEI data sets in which each successive CEI data set is a time propagation of the preceding CEI data set. Special provisions apply to alert users to discontinuities separating one CEI data sequence propagation from another CEI data sequence propagation (e.g., after an upload occurs). An upload may include multiple segments of temporally continuous CEI data sequence propagations.

IS :
A related time-ordered sequence of CEI data sets in which each successive CEI data set is a time propagation of the preceding CEI data set. Special provisions apply to alert users to discontinuities separating one CEI data sequence propagation from another CEI data sequence propagation (e.g., after an upload occurs). An upload may include multiple segments of temporally continuous CEI data sequence propagations.

IS200-312 :

Section Number :
20.3.3.3.1.0-2

WAS :
The clock parameters describe the SV time scale during the period of validity. The parameters are applicable during the time in which they are transmitted. The timing information for subframes, pages, and data sets is covered in Section 20.3.4.

Redlines :
The clock parameters describe the SV time scale during the period of validity. The parameters are applicable during the time in which they are transmitted. The timing information for subframes, pages, and CEI data sets is covered in Section 20.3.4.

IS :
The clock parameters describe the SV time scale during the period of validity. The parameters are applicable during the time in which they are transmitted. The timing information for subframes, pages, and CEI data sets is covered in Section 20.3.4.

IS200-314 :

Section Number :
20.3.3.3.1.1.0-1

WAS :
The ten MSBs of word three shall contain the ten LSBs of the Week Number as defined in 3.3.4. These ten bits shall be a modulo 1024 binary representation of the current GPS week number at the start of the data set transmission interval (see paragraph 3.3.4(b)). The GPS week number increments at each end/start of week epoch. For Block II SVs in long-term extended operations, beginning approximately 28 days after upload, the transmission week number may not correspond to the actual GPS week number due to curve fit intervals that cross week boundaries.

Redlines :
The ten MSBs of word three shall contain the ten LSBs of the Week Number as defined in 3.3.4. These ten bits shall be a

modulo 1024 binary representation of the current GPS week number at the start of the CEI data set transmission interval (see paragraph 3.3.4(b)). The GPS week number increments at each end/start of week epoch. For Block II SVs in long-term extended operations, beginning approximately 28 days after upload, the transmission week number may not correspond to the actual GPS week number due to curve fit intervals that cross week boundaries.

IS :
The ten MSBs of word three shall contain the ten LSBs of the Week Number as defined in 3.3.4. These ten bits shall be a modulo 1024 binary representation of the current GPS week number at the start of the CEI data set transmission interval (see paragraph 3.3.4(b)). The GPS week number increments at each end/start of week epoch. For Block II SVs in long-term extended operations, beginning approximately 28 days after upload, the transmission week number may not correspond to the actual GPS week number due to curve fit intervals that cross week boundaries.

IS200-326 :

Section Number :
20.3.3.3.1.5.0-1

WAS :
Bits 23 and 24 of word three in subframe 1 shall be the two MSBs of the ten-bit IODC term; bits one through eight of word eight in subframe 1 shall contain the eight LSBs of the IODC. The IODC indicates the issue number of the data set and thereby provides the user with a convenient means of detecting any change in the correction parameters. Constraints on the IODC as well as the relationship between the IODC and the IODE (issue of data, ephemeris) terms are defined in paragraph 20.3.4.4.

Redlines :
Bits 23 and 24 of word three in subframe 1 shall be the two MSBs of the ten-bit IODC term; bits one through eight of word eight in subframe 1 shall contain the eight LSBs of the IODC. ~~-~~The IODC indicates the issue number of the data set and thereby provides the user with a convenient means of detecting any change in the ~~correction~~subframe ~~parameters~~1 core CEI data. Constraints on the IODC as well as the relationship between the IODC and the IODE (issue of data, ephemeris) terms are defined in paragraph 20.3.4.4.

IS :
Bits 23 and 24 of word three in subframe 1 shall be the two MSBs of the ten-bit IODC term; bits one through eight of word eight in subframe 1 shall contain the eight LSBs of the IODC. The IODC indicates the issue number of the data set and thereby provides the user with a convenient means of detecting any change in the subframe 1 core CEI data. Constraints on the IODC as well as the relationship between the IODC and the IODE (issue of data, ephemeris) terms are defined in paragraph 20.3.4.4.

IS200-683 :

Section Number :
20.3.3.3.1.5.0-3

WAS :
Whenever the fit interval flag indicates a fit interval greater than 4 hours, the IODC can be used to determine the actual fit interval of the data set (reference section 20.3.4.4).

Redlines :
Whenever the fit interval flag indicates a fit interval greater than 4 hours, the IODC can be used to determine the actual fit interval of the CEI data set (reference section 20.3.4.4).

IS :
Whenever the fit interval flag indicates a fit interval greater than 4 hours, the IODC can be used to determine the actual fit interval of the CEI data set (reference section 20.3.4.4).

IS200-354 :

Section Number :
20.3.3.4.1.0-3

WAS :
The issue of ephemeris data (IODE) term shall provide the user with a convenient means for detecting any change in the ephemeris representation parameters. The IODE is provided in both subframes 2 and 3 for the purpose of comparison with the 8 LSBs of the IODC term in subframe 1. Whenever these three terms do not match, a data set cutover has occurred and new data must be collected. The timing of the IODE and constraints on the IODC and IODE are defined in paragraph 20.3.4.4.

Redlines :
The issue of ephemeris data (IODE) term shall provide the user with a convenient means for detecting any change in the ephemeris representation parameters. The IODE is provided in both subframes 2 and 3 for the purpose of comparison with the 8 LSBs of the IODC term in subframe 1. Whenever these three terms do not match, a CEI data set cutover has occurred and new data must be collected. The timing of the IODE and constraints on the IODC and IODE are defined in paragraph 20.3.4.4.

IS :
The issue of ephemeris data (IODE) term shall provide the user with a convenient means for detecting any change in the ephemeris representation parameters. The IODE is provided in both subframes 2 and 3 for the purpose of comparison with the 8 LSBs of the IODC term in subframe 1. Whenever these three terms do not match, a CEI data set cutover has occurred and new data must be collected. The timing of the IODE and constraints on the IODC and IODE are defined in paragraph 20.3.4.4.

IS200-355 :

Section Number :
20.3.3.4.1.0-4

WAS :
Any change in the subframe 2 and 3 data will be accomplished with a simultaneous change in both IODE words. The CS (Block II/Block IIA/IIR/IIR-M/IIF) and SS (GPS III) shall assure that the t_{oe} value, for at least the first data set transmitted by an SV after an upload, is different from that transmitted prior to the cutover (reference paragraph 20.3.4.5).

Redlines :
Any change in the subframe 2 and 3 core CEI data will be accomplished with a simultaneous change in both IODE words. The CS (Block II/Block IIA/IIR/IIR-M/IIF) and SS (GPS III) shall assure that the toe value, for at least the first CEI data set transmitted by an SV ~~after~~from ~~an~~a ~~upload~~new CEI data sequence propagation, is different from that transmitted for the prior ~~to~~CEI ~~the~~data ~~cutover~~sequence propagation (reference paragraph 20.3.4.5).

IS :
Any change in the subframe 2 and 3 core CEI data will be accomplished with a simultaneous change in both IODE words. The CS (Block II/Block IIA/IIR/IIR-M/IIF) and SS (GPS III) shall assure that the t_{oe} value, for at least the first CEI data set transmitted by an SV from a new CEI data sequence propagation, is different from that transmitted for the prior CEI data sequence propagation (reference paragraph 20.3.4.5).

IS200-363 :

Section Number :
20.3.3.4.3.0-1

WAS :
The user shall compute the ECEF coordinates of position for the phase center of the SVs' antennas utilizing a variation of the equations shown in Table 20-IV. Subframes 2 and 3 parameters are Keplerian in appearance; the values of these parameters, however, are produced by the CS (Block II/Block IIA/IIR/IIR-M/IIF) and SS (GPS III) via a least squares curve fit of the predicted ephemeris of the phase center of the SVs' antennas (time-position quadruples; t, x, y, z expressed in ECEF coordinates). Particulars concerning the periods of the curve fit, the resultant accuracy, and the applicable coordinate system are given in the following subparagraphs.

Redlines :
The user shall compute the ECEF coordinates of position for the phase center of the SVs' antennas utilizing a variation of the equations shown in Table 20-IV. Subframes 2 and 3 parameters are Keplerian in appearance; the values of these parameters, however, are produced by the CS (Block II/Block IIA/IIR/IIR-M/IIF) and SS (GPS III) via a least squares curve fit of the ~~predicted~~propagated ephemeris of the phase center of the SVs' antennas (time-position quadruples; t, x, y, z expressed in ECEF coordinates). Particulars concerning the periods of the curve fit, the resultant accuracy, and the applicable coordinate system are given in the following subparagraphs.

IS :
The user shall compute the ECEF coordinates of position for the phase center of the SVs' antennas utilizing a variation of the equations shown in Table 20-IV. Subframes 2 and 3 parameters are Keplerian in appearance; the values of these parameters, however, are produced by the CS (Block II/Block IIA/IIR/IIR-M/IIF) and SS (GPS III) via a least squares curve fit of the propagated ephemeris of the phase center of the SVs' antennas (time-position quadruples; t, x, y, z expressed in ECEF coordinates). Particulars concerning the periods of the curve fit, the resultant accuracy, and the applicable coordinate system are given in the following subparagraphs.

IS200-462 :

Section Number :
20.3.4.4.0-1

WAS :
The IODE is an 8 bit number equal to the 8 LSBs of the 10 bit IODC of the same data set. The following rules govern the transmission of IODC and IODE values in different data sets: (1) The transmitted IODC will be different from any value transmitted by the SV during the preceding seven days; (2) The transmitted IODE will be different from any value transmitted by the SV during the preceding six hours. The range of IODC will be as given in Table 20-XI for Block II/IIA SVs and Table 20-XII for Block IIR/IIR-M/IIF and GPS III SVs.

Redlines :
The IODE is an 8 bit number equal to the 8 LSBs of the 10 bit IODC of the same CEI data set. The following rules govern the transmission of IODC and IODE values in different CEI data sets: (1) The transmitted IODC will be different from any value transmitted by the SV during the preceding seven days; (2) The transmitted IODE will be different from any value transmitted by the SV during the preceding six hours. The range of IODC will be as given in Table 20-XI for Block II/IIA SVs and Table 20-XII for Block IIR/IIR-M/IIF and GPS III SVs.

IS :
The IODE is an 8 bit number equal to the 8 LSBs of the 10 bit IODC of the same CEI data set. The following rules govern the transmission of IODC and IODE values in different CEI data sets: (1) The transmitted IODC will be different from any value transmitted by the SV during the preceding seven days; (2) The transmitted IODE will be different from any value transmitted by the SV during the preceding six hours. The range of IODC will be as given in Table 20-XI for Block II/IIA SVs and Table 20-XII for Block IIR/IIR-M/IIF and GPS III SVs.

IS200-463 :

Section Number :
20.3.4.4.0-2

WAS :
Cutovers to new data sets will occur only on hour boundaries except for the first data set of a new upload. The first data set may be cut-in (reference paragraph 20.3.4.1) at any time during the hour and therefore may be transmitted by the SV for less than one hour. During short-term operations, cutover to 4-hour sets and subsequent cutovers to succeeding 4-hour data sets will always occur modulo 4 hours relative to end/start of week. Cutover from 4-hour data sets to 6-hour data sets shall occur modulo 12 hours relative to end/start of week. Cutover from 12-hour data sets to 24-hour data sets shall occur modulo 24 hours relative to end/start of week. Cutover from a data set transmitted 24 hours or more occurs on a modulo 24-hour boundary relative to end/start of week.

Redlines :
Cutovers to new CEI data sets will occur only on hour boundaries except for the first CEI data set of a new ~~upload~~CEI data sequence propagation. The first CEI data set may be cut-in (reference paragraph 20.3.4.1) at any time during the hour and therefore may be transmitted by the SV for less than one hour. During short-term operations, cutover to 4-hour sets and subsequent cutovers to succeeding 4-hour CEI data sets will always occur modulo 4 hours relative to end/start of week. Cutover from 4-hour CEI data sets to 6-hour CEI data sets shall occur modulo 12 hours relative to end/start of week. Cutover from 12-hour CEI data sets to 24-hour CEI data sets shall occur modulo 24 hours relative to end/start of week. Cutover from a CEI data set transmitted 24 hours or more occurs on a modulo 24-hour boundary relative to end/start of week.

IS :
Cutovers to new CEI data sets will occur only on hour boundaries except for the first CEI data set of a new CEI data sequence propagation. The first CEI data set may be cut-in (reference paragraph 20.3.4.1) at any time during the hour and therefore may be transmitted by the SV for less than one hour. During short-term operations, cutover to 4-hour sets and subsequent cutovers to succeeding 4-hour CEI data sets will always occur modulo 4 hours relative to end/start of week. Cutover from 4-hour CEI data sets to 6-hour CEI data sets shall occur modulo 12 hours relative to end/start of week. Cutover from 12-hour CEI data sets to 24-hour CEI data sets shall occur modulo 24 hours relative to end/start of week. Cutover from a CEI data set transmitted 24 hours or more occurs on a modulo 24-hour boundary relative to end/start of week.

IS200-464 :

Section Number :
20.3.4.4.0-3

WAS :
The start of the transmission interval for each data set corresponds to the beginning of the curve fit interval for the data set. Each data set nominally remains valid for the duration of its curve fit interval. A data set may be rendered invalid before the end of its curve fit interval when it is superseded by the SV cutting over to new data.

Redlines :
The start of the transmission interval for each CEI data set corresponds to the beginning of the curve fit interval for the CEI data set. Each CEI data set nominally remains valid for the duration of its curve fit interval. A CEI data set may be rendered invalid before the end of its curve fit interval when it is superseded by the SV cutting over to new data.

IS :
The start of the transmission interval for each CEI data set corresponds to the beginning of the curve fit interval for the CEI data set. Each CEI data set nominally remains valid for the duration of its curve fit interval. A CEI data set may be rendered invalid before the end of its curve fit interval when it is superseded by the SV cutting over to new data.

IS200-1509 :

Section Number :
20.3.4.4.0-4

WAS :
The t_{oe} shall be equal to the t_{oc} of the same LNAV data set.

Redlines :
The toe shall be equal to the toc of the same LNAV CEI data set.

IS :
The t_{oe} shall be equal to the t_{oc} of the same LNAV CEI data set.

IS200-1644 :
Insertion after object IS200-1509

Section Number :
20.3.4.4.1

WAS :
N/A

Redlines :
Updates to parameters in table 6-I-1 shall prompt changes in toe/toc/IODC/IODE. Any parameter marked with NOTE1 may be changed with or without a change in toe/toc/IODC/IODE.

IS :
Updates to parameters in table 6-I-1 shall prompt changes in t_{oe}/t_{oc}/IODC/IODE. Any parameter marked with NOTE1 may be changed with or without a change in t_{oe}/t_{oc}/IODC/IODE.

IS200-686 :

Section Number :
20.3.4.4.1-2

WAS :
The subframe 1, 2, and 3 data sets are transmitted by the SV for periods of two hours. The corresponding curve fit interval is four hours. SVs operating in the Autonav mode will deviate. They will transmit subframe 1, 2, and 3 data sets for periods of one hour. The corresponding curve-fit interval will be four hours.

Redlines :
The subframe 1, 2, and 3 CEI data sets are transmitted by the SV for periods of two hours. The corresponding curve fit interval is four hours. SVs operating in the Autonav mode will deviate. They will transmit subframe 1, 2, and 3 CEI data sets for periods of one hour. The corresponding curve-fit interval will be four hours.

IS :
The subframe 1, 2, and 3 CEI data sets are transmitted by the SV for periods of two hours. The corresponding curve fit interval is four hours. SVs operating in the Autonav mode will deviate. They will transmit subframe 1, 2, and 3 CEI data sets for periods of one hour. The corresponding curve-fit interval will be four hours.

IS200-467 :

Section Number :
20.3.4.4.1-6

WAS :

Table 20-XI. IODC Values and Data Set Lengths (Block II/IIA)

Days Spanned	Transmission Interval (hours) (Note 4)	Curve Fit Interval (hours)	IODC Range (Note 1)
1	2	4	(Note 2)
2-14	4	6	(Note 2)
15-16	6	8	240-247
17-20	12	14	248-255, 496 (Note 3)
21-27	24	26	497-503
28-41	48	50	504-510
42-59	72	74	511, 752-756
60-63	96	98	757

Note 1: For transmission intervals of 6 hours or greater, the IODC values shown will be transmitted in increasing order.

Note 2: IODC values for blocks with 2- or 4-hour transmission intervals (at least the first 14 days after upload) shall be any numbers in the range 0 to 1023 excluding those values of IODC that correspond to IODE values in the range 240-255, subject to the constraints on re-transmission given in paragraph 20.3.4.4.

Note 3: The ninth 12-hour data set may not be transmitted.

Note 4: The first data set of a new upload may be cut-in at any time and therefore the transmission interval may be less than the specified value.

Redlines :

Table 20-XI. IODC Values and CEI Data Set Lengths (Block II/IIA)			
Days Spanned	Transmission Interval (hours) (Note 4)	Curve Fit Interval (hours)	IODC Range (Note 1)
1	2	4	(Note 2)
2-14	4	6	(Note 2)
15-16	6	8	240-247
17-20	12	14	248-255, 496 (Note 3)
21-27	24	26	497-503
28-41	48	50	504-510
42-59	72	74	511, 752-756
60-63	96	98	757

Note 1: For transmission intervals of 6 hours or greater, the IODC values shown will be transmitted in increasing order.

Note 2: IODC values for blocks with 2- or 4-hour transmission intervals (at least the first 14 days after a new CEI data sequence propagation) shall be any numbers in the range 0 to 1023 excluding those values of IODC that correspond to IODE values in the range 240-255, subject to the constraints on re-transmission given in paragraph 20.3.4.4.

Note 3: The ninth 12-hour data set may not be transmitted.

Note 4: The first CEI data set of a new CEI data sequence propagation may be cut-in at any time and therefore the transmission interval may be less than the specified value.

IS :

Table 20-XI. IODC Values and CEI Data Set Lengths (Block II/IIA)			
Days Spanned	Transmission Interval (hours) (Note 4)	Curve Fit Interval (hours)	IODC Range (Note 1)
1	2	4	(Note 2)
2-14	4	6	(Note 2)

15-16	6	8	240-247
17-20	12	14	248-255, 496 (Note 3)
21-27	24	26	497-503
28-41	48	50	504-510
42-59	72	74	511, 752-756
60-63	96	98	757

Note 1: For transmission intervals of 6 hours or greater, the IODC values shown will be transmitted in increasing order.

Note 2: IODC values for blocks with 2- or 4-hour transmission intervals (at least the first 14 days after a new CEI data sequence propagation) shall be any numbers in the range 0 to 1023 excluding those values of IODC that correspond to IODE values in the range 240-255, subject to the constraints on re-transmission given in paragraph 20.3.4.4.

Note 3: The ninth 12-hour data set may not be transmitted.

Note 4: The first CEI data set of a new CEI data sequence propagation may be cut-in at any time and therefore the transmission interval may be less than the specified value.

IS200-468 :

Section Number :
20.3.4.4.1-8

WAS :

Table 20-XII. IODC Values and Data Set Lengths (Block IIR/IIR-M/IIF & GPS III)

Days Spanned	Transmission Interval (hours) (Note 5)	Curve Fit Interval (hours)	IODC Range
1	2 (Note 4)	4	(Note 2)
2-14	4	6	(Note 2)
15-16	6	8	240-247 (Note 1)
17-20	12	14	248-255, 496 (Note 1) (Note 3)
21-62	24	26	497-503, 1021-1023

Note 1: For transmission intervals of 6 and 12 hours, the IODC values shown will be transmitted in increasing order.

Note 2: IODC values for blocks with 1-, 2- or 4-hour transmission intervals (at least the first 14 days after upload) shall be any numbers in the range 0 to 1023 excluding those values of IODC that correspond to IODE values in the range 240-255, subject to the constraints on re-transmission given in paragraph 20.3.4.4. The CS can define the GPS III SV time of transition from the 4 hour curve fits into extended navigation (beyond 4 hour curve fits). Following the transition time, the SV will follow the timeframes defined in the table, including appropriately setting IODC values.

Note 3: The ninth 12-hour data set may not be transmitted.

Note 4: SVs operating in the Autonav mode will have transmission intervals of 1 hour per paragraph 20.3.4.4.

Note 5: The first data set of a new upload may be cut-in at any time and therefore the transmission interval may be less than the specified value.

Redlines :

Table 20-XII.	IODC Values and CEI Data Set Lengths (Block IIR/IIR-M/IIF & GPS III)		
Days Spanned	Transmission Interval (hours) (Note 5)	Curve Fit Interval (hours)	IODC Range
1	2 (Note 4)	4	(Note 2)
2-14	4	6	(Note 2)
15-16	6	8	240-247 (Note 1)
17-20	12	14	248-255, 496 (Note 1) (Note 3)
21-62	24	26	497-503, 1021-1023

Note 1: For transmission intervals of 6 and 12 hours, the IODC values shown will be transmitted in increasing order.

Note 2: IODC values for blocks with 1-, 2- or 4-hour transmission intervals (at least the first 14 days after a new CEI data sequence propagation) shall be any numbers in the range 0 to 1023 excluding those values of IODC that correspond to IODE values in the range 240-255, subject to the constraints on re-transmission given in paragraph 20.3.4.4. The CS can define the GPS III SV time of transition from the 4 hour curve fits into extended navigation (beyond 4 hour curve fits). Following the transition time, the SV will follow the timeframes defined in the table, including appropriately setting IODC values.

Note 3: The ninth 12-hour data set may not be transmitted.

Note 4: SVs operating in the Autonav mode will have transmission intervals of 1 hour per paragraph 20.3.4.4.

Note 5: The first CEI data set of a new CEI data sequence propagation may be cut-in at any time and therefore the transmission interval may be less than the specified value.

IS :

Table 20-XII.	IODC Values and CEI Data Set Lengths (Block IIR/IIR-M/IIF & GPS III)		
Days Spanned	Transmission Interval (hours) (Note 5)	Curve Fit Interval (hours)	IODC Range
1	2 (Note 4)	4	(Note 2)

2-14	4	6	(Note 2)
15-16	6	8	240-247 (Note 1)
17-20	12	14	248-255, 496 (Note 1) (Note 3)
21-62	24	26	497-503, 1021-1023

Note 1: For transmission intervals of 6 and 12 hours, the IODC values shown will be transmitted in increasing order.

Note 2: IODC values for blocks with 1-, 2- or 4-hour transmission intervals (at least the first 14 days after a new CEI data sequence propagation) shall be any numbers in the range 0 to 1023 excluding those values of IODC that correspond to IODE values in the range 240-255, subject to the constraints on re-transmission given in paragraph 20.3.4.4. The CS can define the GPS III SV time of transition from the 4 hour curve fits into extended navigation (beyond 4 hour curve fits). Following the transition time, the SV will follow the timeframes defined in the table, including appropriately setting IODC values.

Note 3: The ninth 12-hour data set may not be transmitted.

Note 4: SVs operating in the Autonav mode will have transmission intervals of 1 hour per paragraph 20.3.4.4.

Note 5: The first CEI data set of a new CEI data sequence propagation may be cut-in at any time and therefore the transmission interval may be less than the specified value.

IS200-474 :

Section Number :
20.3.4.5.0-5

WAS :
The CS (Block II/IIA/IIR/IIR-M/IIF) and SS (GPS III) shall assure that the t_{oe} value, for at least the first data set transmitted by an SV after a new upload, is different from that transmitted prior to the cutover (see paragraph 20.3.4.4). As such, when a new upload is cutover for transmission, the CS (Block IIA/IIR/IIR-M/IIF) and SS (GPS III) shall introduce a small deviation in the t_{oe} resulting in the t_{oe} value that is offset from the hour boundaries (see Table 20-XIII). This offset t_{oe} will be transmitted by an SV in the first data set after a new upload cutover and the second data set, following the first data set, may also continue to reflect the same offset in the t_{oe}.

Redlines :
The CS (Block II/IIA/IIR/IIR- M/IIF) and SS (GPS III) shall assure that the toe value, for at least the first CEI data set transmitted by an SV ~~after~~from a new ~~upload~~CEI data sequence propagation, is different from that transmitted from the prior ~~to~~CEI ~~the~~data ~~cutover~~ sequence propagation (see paragraph 20.3.4.4). As such, when a new ~~upload~~CEI data sequence propagation is cutover for transmission, the CS (Block IIA/IIR/IIR-M/IIF) and SS (GPS III) shall introduce a small deviation in the toe resulting in the toe value that is offset from the hour boundaries (see Table 20- XIII). This offset toe will be transmitted by an SV in the first CEI data set ~~after~~of ~~a~~the new ~~upload~~CEI ~~cutover~~data sequence propagation and the second CEI data set, following the first CEI data set, may also continue to reflect the same offset in the toe.

IS :
The CS (Block II/IIA/IIR/IIR M/IIF) and SS (GPS III) shall assure that the t_{oe} value, for at least the first CEI data set transmitted by an SV from a new CEI data sequence propagation, is different from that transmitted from the prior CEI

data sequence propagation (see paragraph 20.3.4.4). As such, when a new CEI data sequence propagation is cutover for transmission, the CS (Block IIA/IIR/IIR-M/IIF) and SS (GPS III) shall introduce a small deviation in the t_{oe} resulting in the t_{oe} value that is offset from the hour boundaries (see Table 20 XIII). This offset t_{oe} will be transmitted by an SV in the first CEI data set of the new CEI data sequence propagation and the second CEI data set, following the first CEI data set, may also continue to reflect the same offset in the t_{oe}.

IS200-475 :

Section Number :
20.3.4.5.1-1

WAS :
When the t_{oe}, immediately prior to a new upload cutover, already reflects a small deviation (i.e. a new upload cutover has occurred in the recent past), then the CS (Block II/IIA/IIR/IIR-M/IIF) and SS (GPS III) shall introduce an additional deviation to the t_{oe} when a new upload is cutover for transmission.

Redlines :
When the toe, immediately prior to a new ~~upload~~CEI data sequence propagation cutover, already reflects a small deviation (i.e. a new ~~upload~~CEI data sequence propagation cutover has occurred in the recent past), then the CS (Block II/IIA/IIR/IIR-M/IIF) and SS (GPS III) shall introduce an additional deviation to the toe when a new ~~upload~~CEI data sequence propagation is cutover for transmission.

IS :
When the t_{oe}, immediately prior to a new CEI data sequence propagation cutover, already reflects a small deviation (i.e. a new CEI data sequence propagation cutover has occurred in the recent past), then the CS (Block II/IIA/IIR/IIR-M/IIF) and SS (GPS III) shall introduce an additional deviation to the t_{oe} when a new CEI data sequence propagation is cutover for transmission.

IS200-476 :

Section Number :
20.3.4.5.1-2

WAS :
A change from the broadcast reference time immediately prior to cutover is used to indicate a change of values in the data set. The user may use the following example algorithm to detect the occurrence of a new upload cutover:

DEV = t_{oe} [modulo 3600]

If DEV ≠ 0, then a new upload cutover has occurred within past 4 hours.

Redlines :
A change from the broadcast reference time immediately prior to cutover is used to indicate a change of values in the CEI data set. The user may use the following example algorithm to detect the occurrence of a new ~~upload~~CEI data sequence propagation cutover:

DEV = toe [modulo 3600]

If DEV ≠ 0, then a new ~~upload~~CEI data sequence propagation cutover has occurred within past 4 hours.

IS :
A change from the broadcast reference time immediately prior to cutover is used to indicate a change of values in the CEI data set. The user may use the following example algorithm to detect the occurrence of a new CEI data sequence propagation cutover:

DEV = t_{oe} [modulo 3600]

If DEV ≠ 0, then a new CEI data sequence propagation cutover has occurred within past 4 hours.

IS200-1293 :

Section Number :
30.3.3.1.1.0-3

WAS :
The t_{oe} term shall provide the user with a convenient means for detecting any change in the ephemeris representation parameters. The t_{oe} is provided in both message type 10 and 11 for the purpose of comparison with the t_{oc} term in message type 30 - 37. Whenever these three terms do not match, a data set cutover has occurred and new data must be collected. The timing of the toe and constraints on the t_{oc} and t_{oe} are defined in paragraph 30.3.4.4.

Redlines :
The toe term shall provide the user with a convenient means for detecting any change in the ephemeris representation parameters. The toe is provided in both message type 10 and 11 for the purpose of comparison with the toc term in message type 30 - 37. Whenever these three terms do not match, a CEI data set cutover has occurred and new data must be collected. The timing of the toe and constraints on the toc and toe are defined in paragraph 30.3.4.4.

IS :
The t_{oe} term shall provide the user with a convenient means for detecting any change in the ephemeris representation parameters. The t_{oe} is provided in both message type 10 and 11 for the purpose of comparison with the t_{oc} term in message type 30 - 37. Whenever these three terms do not match, a CEI data set cutover has occurred and new data must be collected. The timing of the toe and constraints on the t_{oc} and t_{oe} are defined in paragraph 30.3.4.4.

IS200-535 :

Section Number :
30.3.3.1.1.0-4

WAS :
Any change in the message type 10 and 11 ephemeris data will be accomplished with a simultaneous change in the t_{oe} value. The CS will assure the t_{oe} value for Block IIR-M/IIF and SS will assure the t_{oe} value for GPS III, for at least the first data set transmitted by an SV after an upload, is different from that transmitted prior to the cutover. See Section 30.3.4.5 for additional information regarding t_{oe}.

The CNAV messages contain information that allows users to take advantage of situations when integrity is assured to the enhanced level. This is accomplished using a composite integrity assured URA value in conjunction with an integrity status flag. The composite integrity assured URA (IAURA) value is the RSS of an elevation-dependent function of the upper bound value of the URA_{ED} component and the upper bound value of the URA_{NED} component. The composite IAURA value is assured to the enhanced level only when the integrity status flag is “1”; otherwise the IAURA value is assured to the legacy level.

Bit 272 of Message Type 10 is the Integrity Status Flag (ISF). A "0" in bit position 272 indicates that the conveying signal is provided with the legacy level of integrity assurance. That is, the probability that the instantaneous URE of the conveying signal exceeds 4.42 times the current broadcast IAURA value, for more than 5.2 seconds, without an accompanying alert, is less than 1E-5 per hour. A "1" in bit-position 272 indicates that the conveying signal is provided with an enhanced level of integrity assurance. That is, the probability that the instantaneous URE of the conveying signal exceeds 5.73 times the current broadcast IAURA value, for more than 5.2 seconds, without an accompanying alert, is less than 1E-8 per hour. The probabilities associated with the nominal and lower bound values of the current broadcast URA_{ED} index, URA_{NED} indexes, and related URA values are not defined.

In this context, an "alert" is defined as any indication or characteristic of the conveying signal, as specified elsewhere in this document, which signifies to users that the conveying signal may be invalid or should not be used, such as the health bits not indicating operational-healthy, broadcasting non-standard code parity error, etc.

Redlines :
Any change in the message type 10 and 11 ephemeris data will be accomplished with a simultaneous change in the toe value. The CS ~~will assure the toe value for~~ (Block IIR-M/IIF) and SS (GPS III) will assure that the toe value ~~for GPS III~~, for at least the first CEI data set transmitted by an SV ~~after~~from ~~an~~a ~~upload~~new CEI data sequence propagation, is different from that transmitted from the prior ~~to~~CEI ~~the~~data ~~cutover~~sequence propagation. ~~See~~(reference ~~Section~~paragraph 30.3.4.5 for additional information regarding toe~~.~~)

The CNAV messages contain information that allows users to take advantage of situations when integrity is assured to the enhanced level. This is accomplished using a composite integrity assured URA value in conjunction with an integrity status flag. The composite integrity assured URA (IAURA) value is the RSS of an elevation-dependent function of the upper bound value of the URAED component and the upper bound value of the URANED component. The composite IAURA value is assured to the enhanced level only when the integrity status flag is “1”; otherwise the IAURA value is assured to the legacy level.

Bit 272 of Message Type 10 is the Integrity Status Flag (ISF). A "0" in bit position 272 indicates that the conveying signal is provided with the legacy level of integrity assurance. That is, the probability that the instantaneous URE of the conveying signal exceeds 4.42 times the current broadcast IAURA value, for more than 5.2 seconds, without an accompanying alert, is less than 1E-5 per hour. A "1" in bit-position 272 indicates that the conveying signal is provided with an enhanced level of integrity assurance. That is, the probability that the instantaneous URE of the conveying signal exceeds 5.73 times the current broadcast IAURA value, for more than 5.2 seconds, without an accompanying alert, is less than 1E-8 per hour. The probabilities associated with the nominal and lower bound values of the current broadcast URAED index, URANED indexes, and related URA values are not defined.

In this context, an "alert" is defined as any indication or characteristic of the conveying signal, as specified elsewhere in this document, which signifies to users that the conveying signal may be invalid or should not be used, such as the health bits not indicating operational-healthy, broadcasting non-standard code parity error, etc.

IS :
Any change in the message type 10 and 11 ephemeris data will be accomplished with a simultaneous change in the t_{oe} value. The CS (Block IIR-M/IIF) and SS (GPS III) will assure that the t_{oe} value, for at least the first CEI data set transmitted by an SV from a new CEI data sequence propagation, is different from that transmitted from the prior CEI data sequence propagation. (reference paragraph 30.3.4.5 for additional information regarding $t_{oe)}$

The CNAV messages contain information that allows users to take advantage of situations when integrity is assured to the enhanced level. This is accomplished using a composite integrity assured URA value in conjunction with an integrity status flag. The composite integrity assured URA (IAURA) value is the RSS of an elevation-dependent function of the upper bound value of the URA_{ED} component and the upper bound value of the URA_{NED} component. The composite IAURA value is assured to the enhanced level only when the integrity status flag is “1”; otherwise the IAURA value is assured to the legacy level.

Bit 272 of Message Type 10 is the Integrity Status Flag (ISF). A "0" in bit position 272 indicates that the conveying signal is provided with the legacy level of integrity assurance. That is, the probability that the instantaneous URE of the conveying signal exceeds 4.42 times the current broadcast IAURA value, for more than 5.2 seconds, without an accompanying alert, is less than 1E-5 per hour. A "1" in bit-position 272 indicates that the conveying signal is provided with an enhanced level of integrity assurance. That is, the probability that the instantaneous URE of the conveying signal exceeds 5.73 times the current broadcast IAURA value, for more than 5.2 seconds, without an accompanying alert, is less than 1E-8 per hour. The probabilities associated with the nominal and lower bound values of the current broadcast URA_{ED} index, URA_{NED} indexes, and related URA values are not defined.

In this context, an "alert" is defined as any indication or characteristic of the conveying signal, as specified elsewhere in this document, which signifies to users that the conveying signal may be invalid or should not be used, such as the health bits not indicating operational-healthy, broadcasting non-standard code parity error, etc.

IS200-537 :

Section Number :
30.3.3.1.1.1.0-1

WAS :
Bits 39 through 51 of message type 10 shall contain 13 bits which are a modulo-8192 binary representation of the current GPS week number at the start of the data set transmission interval (see paragraph 6.2.4).

Redlines :
Bits 39 through 51 of message type 10 shall contain 13 bits which are a modulo-8192 binary representation of the current GPS week number at the start of the CEI data set transmission interval (see paragraph 6.2.4).

IS :
Bits 39 through 51 of message type 10 shall contain 13 bits which are a modulo-8192 binary representation of the current GPS week number at the start of the CEI data set transmission interval (see paragraph 6.2.4).

IS200-540 :

Section Number :
30.3.3.1.1.2.0-2

WAS :
The predicted health data will be updated at the time of upload when a new data set has been built by the CS. The transmitted health data may not correspond to the actual health of the transmitting SV.

Redlines :
The predicted health data will be updated at the time of upload when a new CEI data set has been built by the CS. The transmitted health data may not correspond to the actual health of the transmitting SV.

IS :
The predicted health data will be updated at the time of upload when a new CEI data set has been built by the CS. The transmitted health data may not correspond to the actual health of the transmitting SV.

IS200-542 :

Section Number :
30.3.3.1.1.3

WAS :
Data Predict Time of Week.

Redlines :
CEI Data ~~Predict~~Sequence Propagation Time of Week.

IS :
CEI Data Sequence Propagation Time of Week.

IS200-543 :

Section Number :
30.3.3.1.1.3.0-1

WAS :
Bits 55 through 65 of message type 10 shall contain the data predict time of week (t_{op}). The t_{op} term provides the epoch time of week of the state estimate utilized for the prediction of satellite quasi-Keplerian ephemeris parameters.

Redlines :
Bits 55 through 65 of message type 10 shall contain the CEI data ~~predict~~sequence propagation time of week (top). The top term provides the epoch time of week of the state ~~estimate~~data utilized for ~~the~~satellite ~~prediction~~CEI data. Users are cautioned to avoid using this parameter to compute age of ~~satellite~~data ~~quasi-Keplerian~~for ~~ephemeris~~any ~~parameters~~SV.

IS :
Bits 55 through 65 of message type 10 shall contain the CEI data sequence propagation time of week (t_{op}). The t_{op} term provides the epoch time of week of the state data utilized for satellite CEI data. Users are cautioned to avoid using this parameter to compute age of data for any SV.

IS200-550 :

Section Number :
30.3.3.1.3.0-1

WAS :
The user shall compute the ECEF coordinates of position for the SV's antenna phase center (APC) utilizing a variation of the equations shown in Table 30-II. The ephemeris parameters are Keplerian in appearance; however, the values of these parameters are produced by the CS (Block IIR-M/IIF) and SS (GPS III) via a least squares curve fit of the predicted ephemeris of the SV APC (time-position quadruples: t, x, y, z expressed in ECEF coordinates). Particulars concerning the applicable coordinate system are given in Sections 20.3.3.4.3.3 and 20.3.3.4.3.4.

Redlines :
The user shall compute the ECEF coordinates of position for the SV's antenna phase center (APC) utilizing a variation of the equations shown in Table 30-II. The ephemeris parameters are Keplerian in appearance; however, the values of these parameters are produced by the CS (Block IIR-M/IIF) and SS (GPS III) via a least squares curve fit of the ~~predicted~~propagated ephemeris of the SV APC (time-position quadruples: t, x, y, z expressed in ECEF coordinates). Particulars concerning the applicable coordinate system are given in Sections 20.3.3.4.3.3 and 20.3.3.4.3.4.

IS :
The user shall compute the ECEF coordinates of position for the SV's antenna phase center (APC) utilizing a variation of the equations shown in Table 30-II. The ephemeris parameters are Keplerian in appearance; however, the values of these parameters are produced by the CS (Block IIR-M/IIF) and SS (GPS III) via a least squares curve fit of the propagated ephemeris of the SV APC (time-position quadruples: t, x, y, z expressed in ECEF coordinates). Particulars concerning the applicable coordinate system are given in Sections 20.3.3.4.3.3 and 20.3.3.4.3.4.

IS200-552 :

Section Number :
30.3.3.1.3.0-4

WAS :

Table 30-I. Message Types 10 and 11 Parameters (1 of 2)				
Parameter	No. of Bits**	Scale Factor (LSB)	Valid Range***	Units

WN	Week No.	13	1		weeks
URA_{ED} Index	ED Accuracy Index	5*			(see text)
Signal health (L1/L2/L5)		3	1		(see text)
t_{op}	Data predict time of week	11	300	0 to 604,500	seconds
ΔA ****	Semi-major axis difference at reference time	26*	2^{-9}		meters
$\dot{A}$	Change rate in semi-major axis	25*	2^{-21}		meters/sec
Δn_0	Mean Motion difference from computed value at reference time	17*	2^{-44}		semi-circles/sec
$\dot{\Delta n_0}$	Rate of mean motion difference from computed value	23*	2^{-57}		semi-circles/sec^2
M_{0-n}	Mean anomaly at reference time	33*	2^{-32}		semi-circles
e_n	Eccentricity	33	2^{-34}	0.0 to 0.03	dimensionless
ω_n	Argument of perigee	33*	2^{-32}		semi-circles

* Parameters so indicated are two's complement, with the sign bit (+ or -) occupying the MSB;

** See Figure 30-1 for complete bit allocation in Message Type 10;

*** Unless otherwise indicated in this column, valid range is the maximum range attainable with indicated bit allocation and scale factor.

**** Relative to A_{REF} = 26,559,710 meters.

Redlines :

Table 30-II. Message Types 10 and 11 Parameters (1 of 2)

Parameter	No. of Bits**	Scale Factor (LSB)	Valid Range***	Units

WN	Data Sequence Propagation Week Number	13	1		weeks
URA_{ED} Index	ED Accuracy Index	5*			(see text)
Signal health (L1/L2/L5)		3	1		(see text)
t_{op}	CEI Data sequence propagation time of week	11	300	0 to 604,500	seconds
ΔA ****	Semi-major axis difference at reference time	26*	2^{-9}		meters
$\dot{A}$	Change rate in semi-major axis	25*	2^{-21}		meters/sec
Δn_0	Mean Motion difference from computed value at reference time	17*	2^{-44}		semi-circles/sec
$\dot{\Delta n}_0$	Rate of mean motion difference from computed value	23*	2^{-57}		semi-circles/sec^2
$M_{0\text{-}n}$	Mean anomaly at reference time	33*	2^{-32}		semi-circles
e_n	Eccentricity	33	2^{-34}	0.0 to 0.03	dimensionless
ω_n	Argument of perigee	33*	2^{-32}		semi-circles

* Parameters so indicated are two's complement, with the sign bit (+ or -) occupying the MSB;
** See Figure 30-1 for complete bit allocation in Message Type 10;
*** Unless otherwise indicated in this column, valid range is the maximum range attainable with indicated bit allocation and scale factor.
**** Relative to A_{REF} = 26,559,710 meters.

IS :

Table 30-III. Message Types 10 and 11 Parameters (1 of 2)

Parameter	No. of Bits**	Scale Factor (LSB)	Valid Range***	Units

WN	Data Sequence Propagation Week Number	13	1		weeks
URA_{ED} Index	ED Accuracy Index	5*			(see text)
Signal health (L1/L2/L5)		3	1		(see text)
t_{op}	CEI Data sequence propagation time of week	11	300	0 to 604,500	seconds
ΔA ****	Semi-major axis difference at reference time	26*	2^{-9}		meters
$\dot{A}$	Change rate in semi-major axis	25*	2^{-21}		meters/sec
Δn_0	Mean Motion difference from computed value at reference time	17*	2^{-44}		semi-circles/sec
$\dot{\Delta n}_0$	Rate of mean motion difference from computed value	23*	2^{-57}		semi-circles/sec^2
$M_{0\text{-}n}$	Mean anomaly at reference time	33*	2^{-32}		semi-circles
e_n	Eccentricity	33	2^{-34}	0.0 to 0.03	dimensionless
ω_n	Argument of perigee	33*	2^{-32}		semi-circles

* Parameters so indicated are two's complement, with the sign bit (+ or -) occupying the MSB;
** See Figure 30-1 for complete bit allocation in Message Type 10;
*** Unless otherwise indicated in this column, valid range is the maximum range attainable with indicated bit allocation and scale factor.
**** Relative to A_{REF} = 26,559,710 meters.

IS200-559 :

Section Number :
30.3.3.2.1.0-1

WAS :
The clock parameters in any one of message types 30 through 37 describe the SV time scale during the period of validity. The parameters are applicable during the time in which they are transmitted. Beyond that time, they are still applicable, however, the most recent data set should be used since the accuracy degrades over time.

Redlines :
The clock parameters in any one of message types 30 through 37 describe the SV time scale during the period of validity.

The parameters are applicable during the time in which they are transmitted. Beyond that time, they are still applicable, however, the most recent CEI data set should be used since the accuracy degrades over time.

IS :
The clock parameters in any one of message types 30 through 37 describe the SV time scale during the period of validity. The parameters are applicable during the time in which they are transmitted. Beyond that time, they are still applicable, however, the most recent CEI data set should be used since the accuracy degrades over time.

IS200-563 :

Section Number :
30.3.3.2.1.2

WAS :
Data Predict Time of Week.

Redlines :
CEI Data ~~Predict~~Sequence Propagation Time of Week.

IS :
CEI Data Sequence Propagation Time of Week.

IS200-564 :

Section Number :
30.3.3.2.1.2.0-1

WAS :
Bits 39 through 49 of message types 30 through 37 shall contain the data predict time of week (t_{op}). The t_{op} term provides the epoch time of week of the state estimate utilized for the prediction of SV clock correction coefficients.

Redlines :
Bits 39 through 49 of message types 30 through 37 shall contain the CEI data ~~predict~~sequence propagation time of week (top).~~-~~ The top term provides the epoch time of week of the state ~~estimate~~data utilized for~~ the prediction~~propagating ~~of~~the SV clock correction coefficients forward in time. Users are cautioned to avoid using this parameter to compute age of data for any SV.

IS :
Bits 39 through 49 of message types 30 through 37 shall contain the CEI data sequence propagation time of week (t_{op}). The t_{op} term provides the epoch time of week of the state data utilized for propagating the SV clock correction coefficients forward in time. Users are cautioned to avoid using this parameter to compute age of data for any SV.

IS200-569 :

Section Number :
30.3.3.2.3.0-3

WAS :

Table 30-III. Clock Correction and Accuracy Parameters

Parameter		No. of Bits**	Scale Factor (LSB)	Valid Range***	Units
t_{op}	Data Predict Time of Week	11	300	0 to 604,500	seconds
t_{oc}	Clock Data Reference Time of Week	11	300	0 to 604,500	seconds
URA_{NED0} Index	NED Accuracy Index	5*			(see text)
URA_{NED1} Index	NED Accuracy Change Index	3			(see text)
URA_{NED2} Index	NED Accuracy Change Rate Index	3			(see text)
a_{f2-n}	SV Clock Drift Rate Correction Coefficient	10*	2^{-60}		sec/sec^2
a_{f1-n}	SV Clock Drift Correction Coefficient	20*	2^{-48}		sec/sec
a_{f0-n}	SV Clock Bias Correction Coefficient	26*	2^{-35}		seconds

* Parameters so indicated are two's complement, with the sign bit (+ or -) occupying the MSB;
** See Figure 30-3 through 30-10 for complete bit allocation in Message types 30 to 37;
*** Unless otherwise indicated in this column, valid range is the maximum range attainable with indicated bit allocation and scale factor.

Redlines :

Table 30-III. Clock Correction and Accuracy Parameters

Parameter		No. of Bits**	Scale Factor (LSB)	Valid Range***	Units
t_{op}	CEI Data Sequence Propagation Time of Week	11	300	0 to 604,500	seconds
t_{oc}	Clock Data Reference Time of Week	11	300	0 to 604,500	seconds
URA_{NED0} Index	NED Accuracy Index	5*			(see text)
URA_{NED1} Index	NED Accuracy Change Index	3			(see text)
URA_{NED2}	NED Accuracy Change Rate Index				(see text)

Index		3			
a_{f2-n}	SV Clock Drift Rate Correction Coefficient	10*	2^{-60}		sec/sec^2
a_{f1-n}	SV Clock Drift Correction Coefficient	20*	2^{-48}		sec/sec
a_{f0-n}	SV Clock Bias Correction Coefficient	26*	2^{-35}		seconds

* Parameters so indicated are two's complement, with the sign bit (+ or -) occupying the MSB;
** See Figure 30-3 through 30-10 for complete bit allocation in Message types 30 to 37;
*** Unless otherwise indicated in this column, valid range is the maximum range attainable with indicated bit allocation and scale factor.

IS :

Table 30-III. Clock Correction and Accuracy Parameters

Parameter		No. of Bits**	Scale Factor (LSB)	Valid Range***	Units
t_{op}	CEI Data Sequence Propagation Time of Week	11	300	0 to 604,500	seconds
t_{oc}	Clock Data Reference Time of Week	11	300	0 to 604,500	seconds
URA_{NED0} Index	NED Accuracy Index	5*			(see text)
URA_{NED1} Index	NED Accuracy Change Index	3			(see text)
URA_{NED2} Index	NED Accuracy Change Rate Index	3			(see text)
a_{f2-n}	SV Clock Drift Rate Correction Coefficient	10*	2^{-60}		sec/sec^2
a_{f1-n}	SV Clock Drift Correction Coefficient	20*	2^{-48}		sec/sec
a_{f0-n}	SV Clock Bias Correction Coefficient	26*	2^{-35}		seconds

* Parameters so indicated are two's complement, with the sign bit (+ or -) occupying the MSB;
** See Figure 30-3 through 30-10 for complete bit allocation in Message types 30 to 37;
*** Unless otherwise indicated in this column, valid range is the maximum range attainable with indicated bit allocation and scale factor.

IS200-1503 :

Section Number :
30.3.3.3.1.3

WAS :
Data Predict Week Number.

Redlines :
CEI Data ~~Predict~~Sequence Propagation Week Number.

IS :
CEI Data Sequence Propagation Week Number.

IS200-1504 :

Section Number :
30.3.3.3.1.3.0-1

WAS :
Bits 257-264 of Message Type 30 shall indicate the Data Predict Week Number (WN_{op}) to which the Data Predict Time of Week (t_{op}) is referenced (see 30.3.3.1.1.3 and 30.3.3.2.1.2). The WN_{op} term consists of eight bits which shall be a modulo 256 binary representation of the GPS week number to which the t_{op} is referenced. The user must account for the truncated nature of WN_{op} in all calculations in which WN_{op} is used.

Redlines :
Bits 257-264 of Message Type 30 shall indicate the CEI Data ~~Predict~~Sequence Propagation Week Number (WNop) to which ~~the Data Predict Time of Week (~~top~~)~~ is referenced (see 30.3.3.1.1.3 and 30.3.3.2.1.2).~~-~~ The WNop term consists of eight bits which shall be a modulo 256 binary representation of the GPS week number to which the top is referenced. The user must account for the truncated nature of WNop in all calculations in which WNop is used. The combination of the epoch time of state data (top, WNop) for a valid CEI data sequence propagation will be in the past relative to the time of broadcast.

IS :
Bits 257-264 of Message Type 30 shall indicate the CEI Data Sequence Propagation Week Number (WN_{op}) to which t_{op} is referenced (see 30.3.3.1.1.3 and 30.3.3.2.1.2). The WN_{op} term consists of eight bits which shall be a modulo 256 binary representation of the GPS week number to which the t_{op} is referenced. The user must account for the truncated nature of WN_{op} in all calculations in which WN_{op} is used. The combination of the epoch time of state data (t_{op}, WN_{op}) for a valid CEI data sequence propagation will be in the past relative to the time of broadcast.

IS200-649 :

Section Number :
30.3.3.7.3.0-1

WAS :
The SV PRN code phase offset, uncorrected by clock correction coefficient updates, is given by equation 2 in paragraph

20.3.3.3.3.1 (see para. 30.3.3.2.3). If the matched pair of DC data for the subject SV is available, the user may apply clock correction coefficient update values by;

$\Delta t_{sv} = (a_{f0} + \delta a_{f0}) + (a_{f1} + \delta a_{f1})(t - t_{oc}) + a_{f2}(t - t_{oc})^2 + \Delta t_r$,

where δa_{f0} and δa_{f1}, (see Table 30-X), are given in message types 34 or 13, and all other terms are as stated in paragraph 20.3.3.3.3.1. Clock-related DC data shall not be applied to any SV transmitting clock correction parameters message(s) containing a t_{op} value greater than the t_{op-D} value of messages types 34 or 13 containing the clock-related DC data.

Redlines :

The SV PRN code phase offset, uncorrected by clock correction coefficient updates, is given by equation 2 in paragraph 20.3.3.3.3.1 (see para. 30.3.3.2.3). If the matched pair of DC data for the subject SV is available, the user may apply clock correction coefficient update values by;

Dtsv = (af0 + daf0) + (af1 + daf1)(t - toc) + af2(t - toc)2 + Dtr,

where daf0 and daf1, (see Table 30-X), are given in message types 34 or 13, and all other terms are as stated in paragraph 20.3.3.3.3.1. Clock-related DC data shall not be applied to any SV transmitting clock correction parameters message(s) containing a top value greater than the top-D value of ~~messages~~message types 34 or 13 containing the clock-related DC data.

IS :

The SV PRN code phase offset, uncorrected by clock correction coefficient updates, is given by equation 2 in paragraph 20.3.3.3.3.1 (see para. 30.3.3.2.3). If the matched pair of DC data for the subject SV is available, the user may apply clock correction coefficient update values by;

$\Delta t_{sv} = (a_{f0} + \delta a_{f0}) + (a_{f1} + \delta a_{f1})(t - t_{oc}) + a_{f2}(t - t_{oc})^2 + \Delta t_r$,

where δa_{f0} and δa_{f1}, (see Table 30-X), are given in message types 34 or 13, and all other terms are as stated in paragraph 20.3.3.3.3.1. Clock-related DC data shall not be applied to any SV transmitting clock correction parameters message(s) containing a t_{op} value greater than the t_{op-D} value of message types 34 or 13 containing the clock-related DC data.

IS200-1399 :

Section Number :

30.3.4.4.0-1

WAS :

The t_{oe} shall be equal to the t_{oc} of the same CNAV data set. The following rules govern the transmission of t_{oe} and t_{oc} values in different data sets: (1) The transmitted t_{oc} will be different from any value transmitted by the SV during the preceding seven days; (2) The transmitted t_{oe} will be different from any value transmitted by the SV during the preceding six hours.

Cutovers to new data sets will occur only on hour boundaries except for the first data set of a new upload. The first data set may be cut-in (reference paragraph 30.3.4.1) at any time during the hour and therefore may be transmitted by the SV for less than one hour.

The start of the transmission interval for each data set corresponds to the beginning of the curve fit interval for the data set. Each data set remains valid for the duration of its transmission interval, and nominally also remains valid for the duration of its curve fit interval. A data set is rendered invalid before the end of its curve fit interval when it is superseded by the SV cutting over to the first data set of a new upload.

Normal Operations. The message type 10, 11, and 30-37 data sets are transmitted by the SV for periods of two hours. The corresponding curve fit interval is three hours.

Redlines :
The toe shall be equal to the toc of the same CNAV CEI data set. top ~~The~~does ~~following~~not ~~rules~~have ~~govern~~to ~~the~~match ~~transmission~~toe/toc. ~~of~~As ~~toe~~a ~~and~~redundant ~~toc~~check, ~~values~~top in ~~different~~message ~~data~~type ~~sets:~~10 ~~(1)~~and ~~The~~11 ~~transmitted~~will ~~toc~~match ~~will~~with ~~be~~the ~~different~~top ~~from~~term ~~any~~in ~~value~~message ~~transmitted~~type ~~by~~30-37 ~~the~~for ~~SV~~a ~~during~~valid CEI data set. The following rule governs the ~~preceding~~transmission ~~seven~~of ~~days;~~toe ~~(2)~~and toc values in different data sets: The transmitted toe/toc will be different from any value transmitted by the SV during the preceding six hours.

Cutovers to new CEI data sets will occur only on hour boundaries except for the first data set of a new ~~upload~~CEI data sequence propagation. The first CEI data set may be cut-in (reference paragraph 30.3.4.1) at any time during the hour and therefore may be transmitted by the SV for less than one hour.

The start of the transmission interval for each CEI data set corresponds to the beginning of the curve fit interval for the CEI data set. Each CEI data set remains valid for the duration of its transmission interval, and nominally also remains valid for the duration of its curve fit interval. A CEI data set is rendered invalid before the end of its curve fit interval when it is superseded by the SV cutting over to the first CEI data set of a new ~~upload~~CEI data sequence propagation.

Normal Operations. The message type 10, 11, and 30-37 CEI data sets are transmitted by the SV for periods of two hours. The corresponding curve fit interval is three hours.

IS :
The t_{oe} shall be equal to the t_{oc} of the same CNAV CEI data set. t_{op} does not have to match t_{oe}/t_{oc}. As a redundant check, top in message type 10 and 11 will match with the top term in message type 30-37 for a valid CEI data set. The following rule governs the transmission of t_{oe} and t_{oc} values in different data sets: The transmitted t_{oe}/t_{oc} will be different from any value transmitted by the SV during the preceding six hours. Cutovers to new CEI data sets will occur only on hour boundaries except for the first data set of a new CEI data sequence propagation. The first CEI data set may be cut-in (reference paragraph 30.3.4.1) at any time during the hour and therefore may be transmitted by the SV for less than one hour.

The start of the transmission interval for each CEI data set corresponds to the beginning of the curve fit interval for the CEI data set. Each CEI data set remains valid for the duration of its transmission interval, and nominally also remains valid for the duration of its curve fit interval. A CEI data set is rendered invalid before the end of its curve fit interval when it is superseded by the SV cutting over to the first CEI data set of a new CEI data sequence propagation.

Normal Operations. The message type 10, 11, and 30-37 CEI data sets are transmitted by the SV for periods of two hours. The corresponding curve fit interval is three hours.

IS200-1645 :
Insertion after object IS200-1399

Section Number :
30.3.4.4.1

WAS :
N/A

Redlines :
Updates to parameters in table 6-I-1 shall prompt changes in toe/toc. Any parameter marked with NOTE1 may be changed with or without a change in toe/toc.

IS :
Updates to parameters in table 6-I-1 shall prompt changes in t_{oe}/t_{oc}. Any parameter marked with NOTE1 may be changed with or without a change in t_{oe}/t_{oc}.

IS200-1496 :

Section Number :
30.3.4.5.0-6

WAS :
The CS (Block IIR-M/IIF) and SS (GPS III) shall assure that the t_{oe} value, for at least the first data set transmitted by an SV after a new upload, is different from that transmitted prior to the cutover (see paragraph 30.3.4.4). As such, when a new upload is cutover for transmission, the CS (Block IIR-M/IIF) and SS (GPS III) shall introduce a small deviation in the t_{oe} resulting in the t_{oe} value that is offset from the nominal location of 1.5 hours into the fit interval (see Table 30-XIII). This offset t_{oe} will be transmitted by an SV in the first data set after a new upload cutover and the second data set, following the first data set, may also continue to reflect the same offset in the t_{oe}.

Redlines :
The CS (Block IIR-M/IIF) and SS (GPS III) shall assure that the toe value, for at least the first CEI data set transmitted by an SV after a new ~~upload~~CEI data sequence propagation, is different from that transmitted prior to the cutover (see paragraph 30.3.4.4). As such, when a new ~~upload~~CEI data sequence propagation is cutover for transmission, the CS (Block IIR-M/IIF) and SS (GPS III) shall introduce a small deviation in the toe resulting in the toe value that is offset from the nominal location of 1.5 hours into the fit interval (see Table 30-XIII). This offset toe will be transmitted by an SV in the first data set after a new ~~upload~~CEI data sequence propagation cutover and the second CEI data set, following the first CEI data set, may also continue to reflect the same offset in the toe.

IS :
The CS (Block IIR-M/IIF) and SS (GPS III) shall assure that the t_{oe} value, for at least the first CEI data set transmitted by an SV after a new CEI data sequence propagation, is different from that transmitted prior to the cutover (see paragraph 30.3.4.4). As such, when a new CEI data sequence propagation is cutover for transmission, the CS (Block IIR-M/IIF) and SS (GPS III) shall introduce a small deviation in the t_{oe} resulting in the t_{oe} value that is offset from the nominal location of 1.5 hours into the fit interval (see Table 30-XIII). This offset t_{oe} will be transmitted by an SV in the first data set after a new CEI data sequence propagation cutover and the second CEI data set, following the first CEI data set, may also continue to reflect the same offset in the t_{oe}.

IS200-1497 :

Section Number :
30.3.4.5.1-1

WAS :
When the t_{oe}, immediately prior to a new upload cutover, already reflects a small deviation (i.e. a new upload cutover has occurred in the recent past), then the CS (Block IIR-M/IIF) and SS (GPS III) shall introduce an additional deviation to the t_{oe} when a new upload is cutover for transmission.

Redlines :
When the toe, immediately prior to a new ~~upload~~CEI data sequence propagation cutover, already reflects a small deviation (i.e. a new ~~upload~~CEI data sequence propagation cutover has occurred in the recent past), then the CS (Block IIR-M/IIF) and SS (GPS III) shall introduce an additional deviation to the toe when a new ~~upload~~CEI data sequence propagation is cutover for transmission.

IS :
When the t_{oe}, immediately prior to a new CEI data sequence propagation cutover, already reflects a small deviation (i.e. a new CEI data sequence propagation cutover has occurred in the recent past), then the CS (Block IIR-M/IIF) and SS (GPS III) shall introduce an additional deviation to the t_{oe} when a new CEI data sequence propagation is cutover for transmission.

IS200-1498 :

Section Number :
30.3.4.5.1-2

WAS :
For CNAV data, the user may use the following example algorithm to detect the occurrence of a new upload cutover:

DEV = t_{oe} [modulo 7200]

If DEV ≠ 5400, then a new upload cutover has occurred within the past 4 hours.

Redlines :
For CNAV data, the user may use the following example algorithm to detect the occurrence of a new ~~upload~~CEI data sequence propagation cutover:

DEV = toe [modulo 7200]

If DEV ≠ 5400, then a new ~~upload~~CEI data sequence propagation cutover has occurred within the past 4 hours.

IS :
For CNAV data, the user may use the following example algorithm to detect the occurrence of a new CEI data sequence propagation cutover:

DEV = t_{oe} [modulo 7200]

If DEV ≠ 5400, then a new CEI data sequence propagation cutover has occurred within the past 4 hours.
