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INTERFACE SPECIFICATION

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	66RP1	**IS-GPS-200**
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REVISION	**DESCRIPTION**	**DOC DATE**	**APPROVED**
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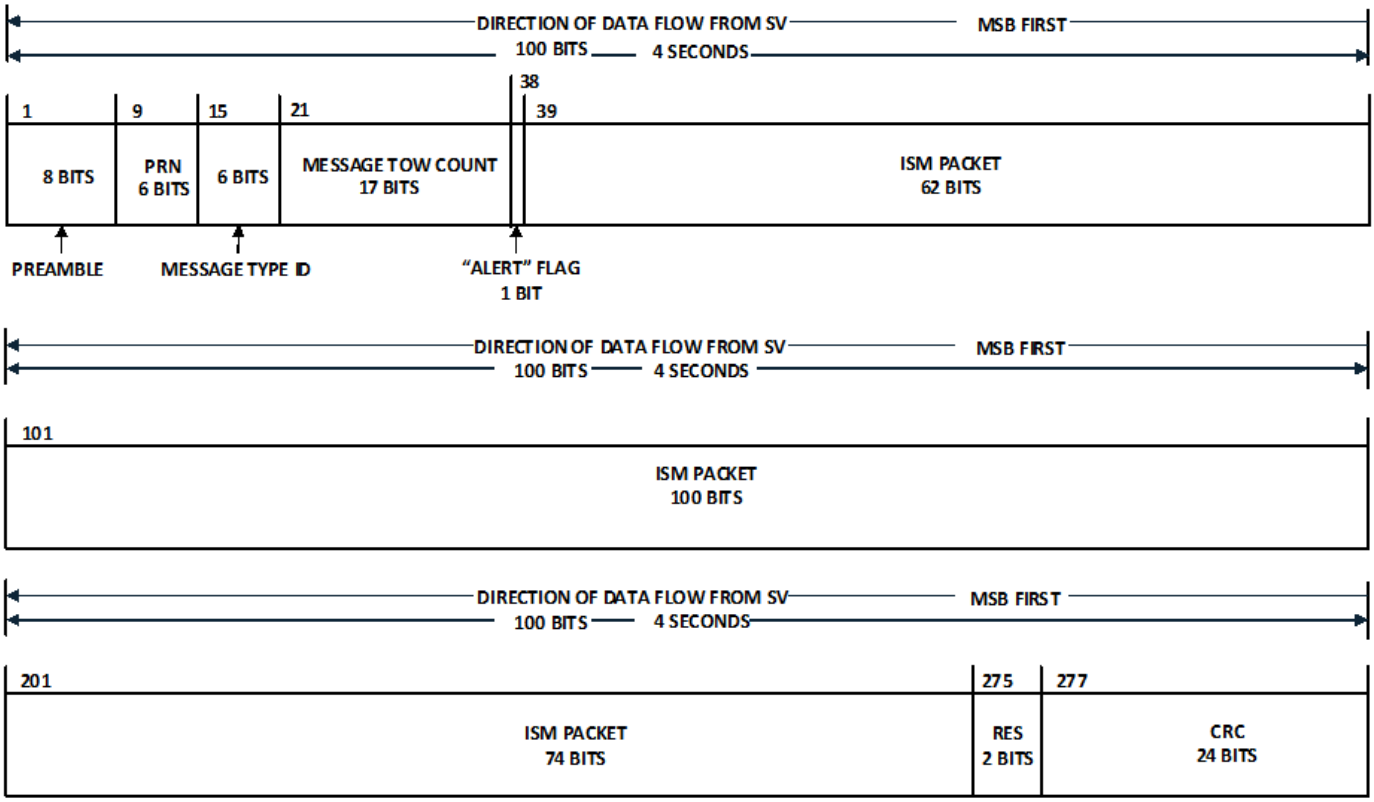
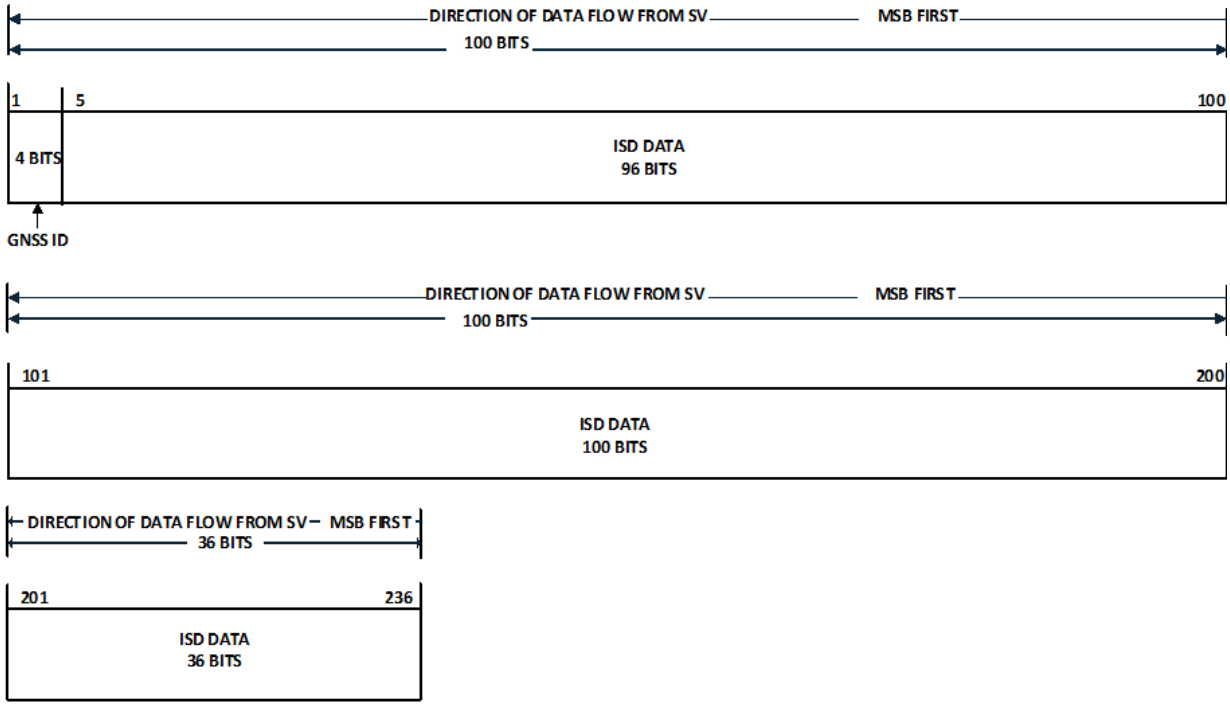
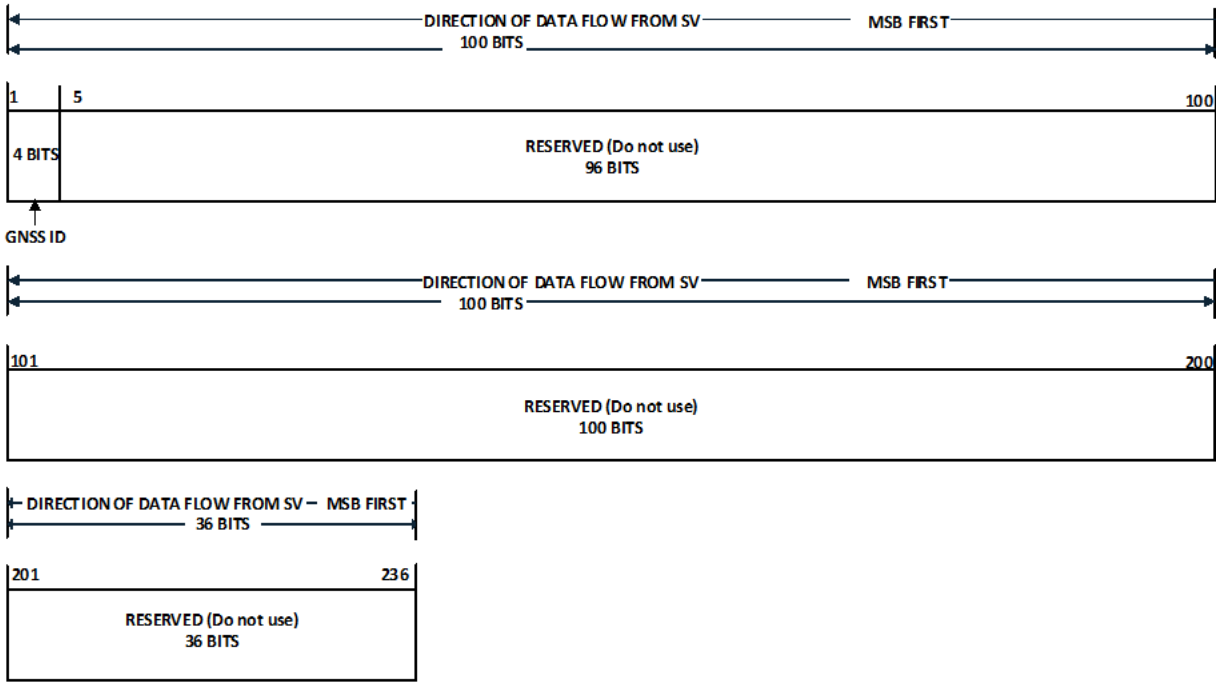
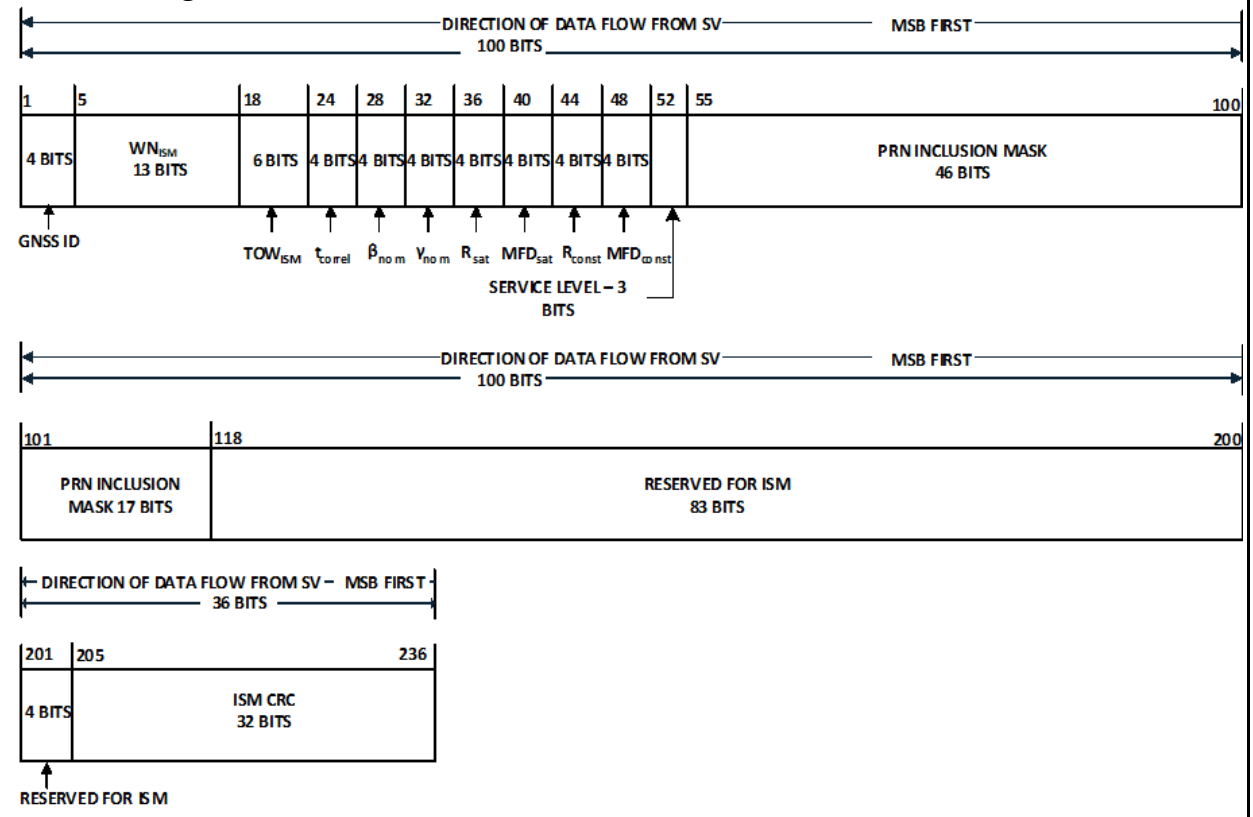
IS200-514	**30.3.3 Message Content**	Header
IS200-1808	Modified Figure  * MESSAGE TOW COUNT = 17 MSBs OF ACTUAL TOW COUNT AT START OF NEXT 12-SECOND MESSAGE	Figure
IS200-1809	**Figure 30-14a. Message Type 40 - Integrity Support Message**	Figure Caption

DOORS ID	IS-GPS-200	Object Type
IS200-1763	**30.3.3.10 Message Type 40 Integrity Support Message (ISM)**	Header
IS200-1764	~~Figure 30-14a contains the structure of~~ Message Type 40, ~~Integrity Support Message (ISM).~~as ~~The~~depicted ~~contents~~in ~~of~~Figure ~~Message~~30-14a ~~Type~~shall ~~40~~contain ~~are~~the ~~defined~~parameters ~~below,~~related ~~followed~~to ~~by~~GNSS ~~material~~constellation ~~pertinent~~and ~~to~~satellite ~~the~~integrity ~~use~~parameters ~~of~~used ~~the~~for ~~ISM~~ARAIM ~~data~~algorithms. ~~Users~~ ~~who~~This ~~implement~~message ~~Advanced~~contains ~~Receiver~~a ~~Autonomous~~236-bit ~~Integrity~~ ~~Monitoring~~ISM ~~(ARAIM)~~Packet ~~may~~(see ~~use~~Figure ~~these~~30-17) ~~parameters~~common ~~for~~among ~~the~~all ~~ARAIM~~GPS ~~algorithm~~Civil ~~as~~signals ~~referenced~~that ~~in~~ carry ~~future~~Integrity ~~TSO~~Support ~~and~~Data ~~MSO~~(ISD).	Requirement
IS200-1765	***30.3.3.10.1*** ~~***ISM***~~***ISD*** **Parameter Content**	Header
IS200-2400	***30.3.3.10.1.1*** **ISM Packet**	Header
IS200-1766	~~Message~~The ~~Type~~ISM ~~40~~Packet shall contain the parameters related to GNSS constellation and satellite integrity parameters. Users ~~used~~who implement Advanced Receiver Autonomous Integrity Monitoring (ARAIM), may use these parameters for the ARAIM ~~algorithms~~algorithm as referenced in future TSO and MSO. The ISM Packet contains the GNSS ID, and ISD data specific to the constellation's ISD needs.	Requirement
~~IS200-1767~~	~~The bit lengths, scale factors, ranges, and units of these parameters are given in Table 30-XIa.~~	~~Info-Only~~
IS200-1768	The CS shall upload the current ISM parameters, when necessary, to the SVs	Requirement

DOORS ID	IS-GPS-200	Object Type
IS200-2387	Inserted Figure  	Figure
IS200-2388	**Figure 30-17 ISM Packet**	Figure Caption
IS200-1775	***30.3.3.10.1.1.1*** **GNSS ~~Constellation~~ ID**	Header
IS200-1776	Bits ~~39~~1 through ~~42~~4 of ~~Message~~the ~~Type~~ISM ~~40~~Packet shall identify the GNSS service to which the associated ISM parameters apply. Furthermore, the GNSS ID is used as a Packet Indicator to show which ISM Packet Overlay applies to the rest of the ISM Packet (see section 30.3.3.10.1.1).	Requirement
IS200-1777	The four bits are defined as follows: 0000 = No Data Available 0001 = ~~Galileo~~Reserved 0010 = ~~GLONASS~~Reserved 0011 = ~~BeiDou~~Reserved 0100 = GPS 0101 = ~~SBAS~~Reserved 0110 = ~~QZSS~~Reserved 0111 = ~~IRNSS~~Reserved 1000 through 1111 = Reserved for other systems	Info-Only

DOORS ID	IS-GPS-200	Object Type
~~IS200-1814~~	~~If users see four bits of '0000', users will ignore the entire ISM.~~	~~Info-Only~~
IS200-2389	***30.3.3.10.1.2* ISM Packet Overlay Formats**	Header
IS200-2392	This section describes the different constellation specific ISM Packet overlays that are currently defined to detail the ISD parameters inside bits 5 through 236 of the ISM Packet.	Requirement
IS200-2390	***30.3.3.10.1.2.1* Test Packet – GNSS ID = 0000**	Header
IS200-2393	The 236-bit Test Packet is applicable when GNSS ID = 0000 (see Figure 30-18). This packet is for test purposes and doesn't contain any data operationally useful to the ARAIM function.	Info-Only
IS200-2394	If user equipment encounters this packet, it should be ignored.	Info-Only
IS200-2395	Inserted Figure 	Figure
IS200-2396	**Figure 30-18 Test Packet**	Figure Caption

DOORS ID	IS-GPS-200	Object Type
IS200-2391	***30.3.3.10.1.2.2* GPS ISM Packet – GNSS ID = 0100**	Header
IS200-2397	Each 236-bit GPS ISM Packet (see Figure 30-19) is applicable to a specific subset of SVs identified in the GPS PRN Inclusion Mask for the given Service Level, constellation identified by GNSS ID and start time. This packet is applicable only when GNSS ID = 0100.	Requirement
IS200-1767	The bit lengths, scale factors, ranges, and units of this packet's ~~these~~ parameters are given in Table 30-XIa.	Info-Only
IS200-2398	Inserted Figure 	Figure
IS200-2399	**Figure 30-19 GPS ISM Packet**	Figure Caption

DOORS ID	IS-GPS-200	Object Type
IS200-1772	**Table 30-XIa – GPS ISM Packet Parameters**	Table Caption
IS200-1770		Table

Parameter	No. of Bits**	Scale Factor (LSB)	Valid Range***	Units
WN_{ISM}	13	1		weeks
TOW_{ISM}	6	4	0 to 164	hours
t_{correl}	4		0 to 12 See text	hours
$b\beta_{nom}$	4	0.1	0 to 2	meters
γ_{nom}	4	0.05	0 to 2	dimensionless
R_{sat}	4		$1x10^{-3}$ to $3.16x10^{-10}$ See text	/hours
MFD_{sat}	4		See text	
PR_{const}	4		See text	
MFD_{const}	4		0.25 to 24 See text	hours
Service Level***	3		See text	
GPS PRN Inclusion Mask ****	63		See text	
Reserved For ISM	87		See text	
ISM CRC	32		See text	

* See Figures 30-19 14a for complete bit allocations in the GPS ISM Packet Message Type 40

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

*** See Table 30-XIb for Service Level Descriptions

**** See Table 30-XIbc for GPS PRN Inclusion Mask bit mapping

IS200-1778	**30.3.3.10.1.2.2.1 ISM Effectivity Time Stamp Week Number**	Header
IS200-1779	Bits 435 through 5517 of Messagethe TypeGPS 40ISM Packet shall provide the ISM Week Number (WN_{ISM}) applicable to the start of the time of validity for a given ISM dataPacket issue(see paragraph 6.2.4).	Requirement
IS200-1780	This parameter describes the time stamp, in terms of weeks, for the ISMISD parameters.	Info-Only
IS200-1781	**30.3.3.10.1.2.2.2 ISM Effectivity Time Stamp Time of Week**	Header
IS200-1782	Bits 5618 through 6123 of Messagethe TypeGPS 40ISM Packet shall provide the ISM Time of Week (TOW_{ISM}) applicable to the start of the time of validity for a given ISM data issuePacket.	Requirement
IS200-1783	This parameter describes the time stamp, in terms of hours, for the ISMISD parameters.	Info-Only

DOORS ID	IS-GPS-200	Object Type
IS200-1990	Users should use the ISM parameters with the most recent WN_{ISM} and TOW_{ISM} time stamp. All time stamps should be in the past.	Info-Only
IS200-1790	**30.3.3.10.1.2.2.3 Correlation Time Constant**	Header
IS200-1791	Bits ~~62~~24 through ~~65~~27 of ~~Message~~the ~~Type~~GPS ~~40~~ISM Packet shall provide the ~~assumed~~ Correlation Time Constant (t_{correl}) value for ~~the~~use ~~ARAIM~~consistent ~~at~~with the ~~current~~other ~~time~~parameters ~~for~~in the ~~associated~~ ~~GNSS~~ISM ~~constellation~~packet.	Requirement
IS200-1792	The four bits are defined as follows: 0000 = 0.25 hours 0001 = 0.33 hours 0010 = 0.50 hours 0011 = 0.67 hours 0100 = 0.83 hours 0101 = 1.00 hour 0110 = 1.17 hours 0111 = 1.33 hours 1000 = 1.50 hours 1001 = 2.10 hours 1010 = 3.00 hours 1011 = 4.20 hours 1100 = 6.00 hours 1101 = 8.50 hours 1110 = 12.00 hours 1111 = ~~RESERVED~~Reserved	Info-Only
IS200-1802	**30.3.3.10.1.2.2.4 IAURA-Independent Additive Term for Nominal Pseudorange Error Bias**	Header
IS200-1803	Bits ~~66~~28 through ~~69~~31 of ~~Message~~the ~~Type~~GPS ~~40~~ISM Packet shall provide the ~~assumed~~IAURA-Independent Additive Term ($~~b_{nom}~~\beta_{nom}$) value for ~~ARAIM~~use ~~at~~consistent with the ~~current~~other ~~time~~parameters ~~for~~in the ~~associated~~ISM ~~GNSS~~packet. ~~constellation~~The β_{nom} bounds additive biases in the instantaneous URE that do not scale with IAURA, which is defined in section 30.3.3.1.1.	Requirement

DOORS ID	IS-GPS-200	Object Type
IS200-1804	~~The four bits are defined as follows:~~ ~~0000 = 0.00 meters~~ ~~0001 = 0.13 meters~~ ~~0010 = 0.25 meters~~ ~~0011 = 0.38 meters~~ ~~0100 = 0.50 meters~~ ~~0101 = 0.63 meters~~ ~~0110 = 0.75 meters~~ ~~0111 = 0.88 meters~~ ~~1000 = 1.00 meter~~ ~~1001 = 1.13 meters~~ ~~1010 = 1.25 meters~~ ~~1011 = 1.38 meters~~ ~~1100 = 1.50 meters~~ ~~1101 = 1.63 meters~~ ~~1110 = 1.75 meters~~ ~~1111 = 2.00 meters~~	Info-Only

DOORS ID	IS-GPS-200	Object Type
IS200-1805	**30.3.3.10.1.2.2.5 Scalar Term for Nominal Pseudorange Error Bias**	Header
IS200-1806	Bits 7032 through 7335 of Messagethe TypeGPS 40ISM Packet shall provide the assumed Scalar Term (γ_{nom}) value for ARAIMuse atconsistent with the currentother timeparameters forin the associatedISM GNSSpacket. constellationThe γ_{nom} bounds normalized additive biases in the instantaneous URE that scale with IAURA, which is defined in section 30.3.3.1.1.	Requirement
IS200-1807	The four bits are defined as follows: 0000 = 0.00 0001 = 0.13 0010 = 0.25 0011 = 0.38 0100 = 0.50 0101 = 0.63 0110 = 0.75 0111 = 0.88 1000 = 1.00 1001 = 1.13 1010 = 1.25 1011 = 1.38 1100 = 1.50 1101 = 1.63 1110 = 1.75 1111 = 2.00	Info-Only

DOORS ID	IS-GPS-200	Object Type
IS200-1796	**30.3.3.10.1.2.2.6 Satellite Fault Rate**	Header
IS200-1797	Bits ~~74~~36 through ~~77~~39 of ~~Message~~the ~~Type~~GPS ~~40~~ISM Packet shall provide the ~~assumed~~ Satellite Fault Rate (R_{sat}) value for ~~ARAIM~~use ~~at~~consistent with the ~~current~~other ~~time~~parameters ~~for~~in the ~~associated~~ISM ~~GNSS~~packet. ~~constellation~~ R_{sat} is the onset rate at which the instantaneous URE of any given satellite exceeds 4.42 times the IAURA.	Requirement
IS200-1798	The four bits are defined as follows: 0000 = ~~3.16 x 10-3 /hours~~ ~~0001 =~~ 1 x 10-~~3~~8 /~~hours~~hour ~~0010~~0001 = 3.16 x 10-~~4~~8 /~~hours~~hour ~~0011~~0010 = 1 x 10-~~4~~7 /~~hours~~hour ~~0100~~0011 = 3.16 x 10-~~5~~7 /~~hours~~hour ~~0101~~0100 = 1 x 10-~~5~~6 /~~hours~~hour ~~0110~~0101 = 3.16 x 10-6 /~~hours~~hour ~~0111~~0110 = 1 x 10-~~6~~5 /~~hours~~hour ~~1000~~0111 = 3.16 x 10-~~7~~5 /~~hours~~hour * ~~1001~~1000 = 1 x 10-~~7~~4 /~~hours~~hour * ~~1010~~1001 =~~ 3.16~~ ~~x~~Reserved 1010 ~~10-8~~= ~~/hours~~Reserved 1011 =~~ 1 x 10-8 /hours~~Reserved 1100 = ~~3.16~~Reserved 1101 ~~x~~= ~~10-9~~Reserved 1110 ~~/hours~~= Reserved ~~1101~~1111 = ~~1~~Reserved * ~~x~~Values ~~10-9~~inconsistent ~~/hours~~ ~~1110~~with =GPS ~~3.16~~performance ~~x~~commitments ~~10-10~~are ~~/hours~~ ~~1111~~included =to ~~RESERVED~~ support Service Level 4 operations	Info-Only

DOORS ID	IS-GPS-200	Object Type
IS200-2126	**30.3.3.10.1.2.2.7 Mean Duration of a Satellite Fault**	Header
IS200-2127	Bits 40 through 43 of the GPS ISM Packet shall provide the mean duration of a satellite fault (MFD_{sat}) value for use consistent with the other parameters in the ISM packet. MFD_{sat} is the mean duration the instantaneous URE of any given satellite exceeds 4.42 times the IAURA without a timely notification issued to the user.	Requirement
IS200-2128	The four bits are defined as follows: 0000 = 0.25 hour 0001 = 0.5 hour 0010 = 1.0 hour 0011 = 2.0 hours * 0100 = 4.0 hours * 0101 = 6.0 hours * 0110 = 8.0 hours * 0111 = Reserved 1000 = Reserved 1001 = Reserved 1010 = Reserved 1011 = Reserved 1100 = Reserved 1101 = Reserved 1110 = Reserved 1111 = Reserved * Values inconsistent with GPS performance commitments are included to support Service Level 4 operations.	Info-Only

DOORS ID	IS-GPS-200	Object Type
IS200-1787	**30.3.3.10.1.2.2.8 Constellation Fault ~~Probability~~Rate**	Header
IS200-1788	Bits ~~78~~44 through ~~81~~47 of ~~Message~~the ~~Type~~GPS ~~40~~ISM Packet shall provide the ~~assumed Constellation~~constellation ~~Fault~~fault ~~Probability~~rate ($~~P_{const}~~R_{const}$) value for ~~ARAIM~~use ~~at~~consistent with the ~~current~~other ~~time~~parameters ~~for~~in the ~~associated~~ISM ~~GNSS~~packet. R_{const} is ~~constellation~~the onset rate at which the instantaneous URE of two or more satellites exceed, due to a common cause, 4.42 times the IAURA.	Requirement
IS200-1789	The four bits are defined as follows: 0000 = 3.16 x $10^{-~~3~~10}$ /hour 0001 = 1.00 x $10^{-~~3~~9}$ /hour 0010 = 3.16 x $10^{-~~4~~9}$ /hour 0011 = 1.00 x $10^{-~~4~~8}$ /hour 0100 = 3.16 x $10^{-~~5~~8}$ /hour * 0101 = 1.00 x $10^{-~~5~~7}$ /hour * 0110 = 3.16 x $10^{-~~6~~7}$ /hour * 0111 = 1.00 x 10^{-6} /hour * 1000 = 3.16 x $10^{-~~7~~6}$ /hour * 1001 = ~~1 x 10^{-7}~~Reserved 1010 = ~~3.16 x 10^{-8}~~Reserved 1011 = ~~1 x 10^{-8}~~Reserved 1100 = ~~3.16 x 10^{-9}~~Reserved 1101 = ~~1 x 10^{-9}~~Reserved 1110 = ~~3.16 x 10^{-10}~~ Reserved 1111 = ~~RESERVED~~Reserved * Values inconsistent with GPS performance commitments are included to support Service Level 4 operations.	Info-Only

DOORS ID	IS-GPS-200	Object Type
IS200-1799	**30.3.3.10.1.2.2.9 Mean ~~Fault~~ Duration of a Constellation Fault**	Header
IS200-1800	Bits ~~82~~48 through ~~85~~51 of ~~Message~~the ~~Type~~GPS ~~40~~ISM Packet shall provide the ~~assumed~~mean ~~Mean~~duration ~~Fault~~of ~~Duration~~a constellation fault (~~MFD~~MFD_{const}) value for ~~ARAIM~~use ~~at~~consistent with the ~~current~~other ~~time~~parameters ~~for~~in the ~~associated~~ISM ~~GNSS~~packet. MFD_{const} is ~~constellation~~the mean duration the instantaneous URE of two or more satellites exceed, due to a common cause, 4.42 times the IAURA without a timely notification issued to the user.	Requirement
IS200-1801	The four bits are defined as follows: 0000 = 0.25 ~~hours~~hour 0001 = 0.~~33~~5 ~~hours~~hour 0010 = ~~0~~1.~~50~~0 ~~hours~~hour 0011 = ~~0~~2.~~67~~0 hours * 0100 = ~~0~~4.~~83~~0 hours * 0101 = ~~1~~6.0 ~~hour~~hours * 0110 = ~~1~~8.~~25~~0 hours * 0111 = ~~1.50 hours~~Reserved 1000 = ~~1.75 hours~~Reserved 1001 = ~~2 hours~~Reserved 1010 = ~~3 hours~~Reserved 1011 = ~~4 hours~~Reserved 1100 = ~~7 hours~~Reserved 1101 = ~~10 hours~~Reserved 1110 = ~~17 hours~~ Reserved 1111 = ~~24 hours~~Reserved * Values inconsistent with GPS performance commitments are included to support Service Level 4 operations.	Info-Only

DOORS ID	IS-GPS-200	Object Type
IS200-1784	**30.3.3.10.1.2.2.10 Service Level**	Header
IS200-1785	Bits ~~86~~52 through ~~88~~54 of ~~Message~~the ~~Type~~GPS ~~40~~ISM Packet shall provide the Service Level, as described in Table 30-XIb, ~~applicable~~for ~~to~~use ~~a~~consistent ~~given~~with ~~page~~the ~~of~~other parameters in the ISM ~~data issue~~packet.	Requirement
IS200-1786	Three bits are allocated to the four identified service levels as follows: 000 = Level 1 001 = Level 2 010 = Level 3 011 = Level 4 100 = Level 5 101 to 111 = Reserved for future use	Info-Only

<table>
<tr><th>DOORS ID</th><th>IS-GPS-200</th><th>Object Type</th></tr>
<tr><td>IS200-1773</td><td>Table 30-XIb - Service Level</td><td>Table Caption</td></tr>
<tr><td>IS200-1774</td><td>
<table>
<tr><th>Service Level</th><th>Severity</th><th>Description</th><th>Notes/Applicability</th></tr>
<tr><td>Level 1</td><td>No Data Available</td><td>~~Service Level indicates that users may resort to the Performance Values for integrity solutions instead of this ISM. Users should not use this ISM~~ Broadcast ISD values are invalid. Applicable performance commitments remain valid</td><td>Any ISD parameter received for the associated GNSS ID with an effectivity time stamp earlier than the Service Level 1 effectivity time stamp (WN_{ISM} and TOW_{ISM}) is invalid. The Service Level 1 applies to ISD parameters for all other Service Levels</td></tr>
<tr><td>Level 2</td><td>Non-Safety of Life Use</td><td>~~Service Level indicates that users may only use these~~These parameters are for non-safety of life (i.e., uncertified ARAIM) applications</td><td></td></tr>
<tr><td>Level 3</td><td>Safety of Life Use (Horizontal)</td><td>~~Service Level indicates that the user should only use these~~These parameters are for ~~the~~ applications requiring integrity less than or equivalent to H-ARAIM solutions</td><td>ISD parameters for GPS for Service Level 3 are valid for use with elevation angles greater than or equal to 2 degrees</td></tr>
<tr><td>Level 4</td><td>Safety of Life Use (Vertical)</td><td>~~Service Level indicates that the user should only use these~~These parameters are for ~~the~~ applications requiring integrity less than or equivalent to V-ARAIM solutions</td><td>ISD parameters for GPS for Service Level 4 are valid for use with elevation angles greater than or equal to 2 degrees</td></tr>
<tr><td>Level 5</td><td>Safety of Life Use (Horizontal and Vertical)</td><td>These parameters are for applications requiring integrity less than or equivalent to H-ARAIM and V-ARAIM solutions. These parameters apply to both Service Level 3 and Service Level 4</td><td></td></tr>
</table>
</td><td>Table</td></tr>
<tr><td>IS200-1793</td><td>30.3.3.10.1.2.2.11 ~~Satellite~~GPS PRN Inclusion Mask</td><td>Header</td></tr>
<tr><td>IS200-1794</td><td>Bits ~~89~~55 through ~~151~~117 of ~~Message~~the ~~Type~~GPS ~~40~~ISM Packet shall provide the GPS PRN ~~inclusion~~Inclusion ~~mask~~Mask. Refer to Table 30-XIc for complete ~~GNSS~~GPS PRN ~~mapping~~Inclusion Mask Mapping.</td><td>Requirement</td></tr>
<tr><td>IS200-1795</td><td>The applicability of each PRN ~~is~~shall be indicated by:
0 = Information in ~~the~~this ~~current~~GPS ISM Packet does not apply to this PRN
1 = Information in ~~the~~this ~~current~~GPS ISM Packet does apply to this PRN</td><td>Info-Only</td></tr>
</table>

DOORS ID	IS-GPS-200	Object Type
IS200-1815	**Table 30-XIc GPS PRN Inclusion Mask Mapping**	Table Caption
IS200-1816		Table

Bits	~~Galileo~~	~~GLONASS~~	~~BeiDou~~	GPS PRN	~~SBAS~~	~~QZSS~~	~~IRNSS~~
~~89~~55	~~SVID 1~~	~~Freq. 1~~	~~RCN 1~~	PRN 1	~~PRN 120~~	~~PRN 183~~	~~PRN ID 1~~
~~90~~56	~~SVID 2~~	~~Freq. 2~~	~~RCN 2~~	PRN 2	~~PRN 121~~	~~PRN 184~~	~~PRN ID 2~~
~~91~~57	~~SVID 3~~	~~Freq. 3~~	~~RCN 3~~	PRN 3	~~PRN 122~~	~~PRN 185~~	~~PRN ID 3~~
~~92~~58	~~SVID 4~~	~~Freq. 4~~	~~RCN 4~~	PRN 4	~~PRN 123~~	~~PRN 186~~	~~PRN ID 4~~
~~93~~59	~~SVID 5~~	~~Freq. 5~~	~~RCN 5~~	PRN 5	~~PRN 124~~	~~PRN 187~~	~~PRN ID 5~~
~~94~~60	~~SVID 6~~	~~Freq. 6~~	~~RCN 6~~	PRN 6	~~PRN 125~~	~~PRN 188~~	~~PRN ID 6~~
~~95~~61	~~SVID 7~~	~~Freq. 7~~	~~RCN 7~~	PRN 7	~~PRN 126~~	~~PRN 189~~	~~PRN ID 7~~
~~96~~62	~~SVID 8~~	~~Freq. 8~~	~~RCN 8~~	PRN 8	~~PRN 127~~	~~PRN 190~~	~~Reserved~~
~~97~~63	~~SVID 9~~	~~Freq. 9~~	~~RCN 9~~	PRN 9	~~PRN 128~~	~~PRN 191~~	~~Reserved~~
~~98~~64	~~SVID 10~~	~~Freq. 10~~	~~RCN 10~~	PRN 10	~~PRN 129~~	~~PRN 192~~	~~Reserved~~
~~99~~65	~~SVID 11~~	~~Freq. 11~~	~~RCN 11~~	PRN 11	~~PRN 130~~	~~PRN 193~~	~~Reserved~~
~~100~~66	~~SVID 12~~	~~Freq. 12~~	~~RCN 12~~	PRN 12	~~PRN 131~~	~~PRN 194~~	~~Reserved~~
~~101~~67	~~SVID 13~~	~~Freq. 13~~	~~RCN 13~~	PRN 13	~~PRN 132~~	~~PRN 195~~	~~Reserved~~
~~102~~68	~~SVID 14~~	~~Freq. 14~~	~~RCN 14~~	PRN 14	~~PRN 133~~	~~PRN 196~~	~~Reserved~~
~~103~~69	~~SVID 15~~	~~Freq. 15~~	~~RCN 15~~	PRN 15	~~PRN 134~~	~~PRN 197~~	~~Reserved~~
~~104~~70	~~SVID 16~~	~~Freq. 16~~	~~RCN 16~~	PRN 16	~~PRN 135~~	~~PRN 198~~	~~Reserved~~
~~105~~71	~~SVID 17~~	~~Freq. 17~~	~~RCN 17~~	PRN 17	~~PRN 136~~	~~PRN 199~~	~~Reserved~~
~~106~~72	~~SVID 18~~	~~Freq. 18~~	~~RCN 18~~	PRN 18	~~PRN 137~~	~~PRN 200~~	~~Reserved~~
~~107~~73	~~SVID 19~~	~~Freq. 19~~	~~RCN 19~~	PRN 19	~~PRN 138~~	~~PRN 201~~	~~Reserved~~
~~108~~74	~~SVID 20~~	~~Freq. 20~~	~~RCN 20~~	PRN 20	~~PRN 139~~	~~PRN 202~~	~~Reserved~~
~~109~~75	~~SVID 21~~	~~Freq. 21~~	~~RCN 21~~	PRN 21	~~PRN 140~~	~~Reserved~~	~~Reserved~~
~~110~~76	~~SVID 22~~	~~Freq. 22~~	~~RCN 22~~	PRN 22	~~PRN 141~~	~~Reserved~~	~~Reserved~~
~~111~~77	~~SVID 23~~	~~Freq. 23~~	~~RCN 23~~	PRN 23	~~PRN 142~~	~~Reserved~~	~~Reserved~~
~~112~~78	~~SVID 24~~	~~Freq. 24~~	~~RCN 24~~	PRN 24	~~PRN 143~~	~~Reserved~~	~~Reserved~~
~~113~~79	~~SVID 25~~	~~Freq. 25~~	~~RCN 25~~	PRN 25	~~PRN 144~~	~~Reserved~~	~~Reserved~~
~~114~~80	~~SVID 26~~	~~Freq. 26~~	~~RCN 26~~	PRN 26	~~PRN 145~~	~~Reserved~~	~~Reserved~~
~~115~~81	~~SVID 27~~	~~Freq. 27~~	~~RCN 27~~	PRN 27	~~PRN 146~~	~~Reserved~~	~~Reserved~~
~~116~~82	~~SVID 28~~	~~Freq. 28~~	~~RCN 28~~	PRN 28	~~PRN 147~~	~~Reserved~~	~~Reserved~~
~~117~~83	~~SVID 29~~	~~Freq. 29~~	~~RCN 29~~	PRN 29	~~PRN 148~~	~~Reserved~~	~~Reserved~~
~~118~~84	~~SVID 30~~	~~Freq. 30~~	~~RCN 30~~	PRN 30	~~PRN 149~~	~~Reserved~~	~~Reserved~~
~~119~~85	~~SVID 31~~	~~Freq. 31~~	~~RCN 31~~	PRN 31	~~PRN 150~~	~~Reserved~~	~~Reserved~~
~~120~~86	~~SVID 32~~	~~Freq. 32~~	~~RCN 32~~	PRN 32	~~PRN 151~~	~~Reserved~~	~~Reserved~~
~~121~~87	~~SVID 33~~	~~Reserved~~	~~RCN 33~~	PRN 33	~~PRN 152~~	~~Reserved~~	~~Reserved~~
~~122~~88	~~SVID 34~~	~~Reserved~~	~~RCN 34~~	PRN 34	~~PRN 153~~	~~Reserved~~	~~Reserved~~
~~123~~89	~~SVID 35~~	~~Reserved~~	~~RCN 35~~	PRN 35	~~PRN 154~~	~~Reserved~~	~~Reserved~~
~~124~~90	~~SVID 36~~	~~Reserved~~	~~RCN 36~~	PRN 36	~~PRN 155~~	~~Reserved~~	~~Reserved~~
~~125~~91	~~Reserved~~	~~Reserved~~	~~RCN 37~~	PRN 37	~~PRN 156~~	~~Reserved~~	~~Reserved~~
~~126~~92	~~Reserved~~	~~Reserved~~	~~Reserved~~	PRN 38	~~PRN 157~~	~~Reserved~~	~~Reserved~~
~~127~~93	~~Reserved~~	~~Reserved~~	~~Reserved~~	PRN 39	~~PRN 158~~	~~Reserved~~	~~Reserved~~
~~128~~94	~~Reserved~~	~~Reserved~~	~~Reserved~~	PRN 40	~~Reserved~~	~~Reserved~~	~~Reserved~~
~~129~~95	~~Reserved~~	~~Reserved~~	~~Reserved~~	PRN 41	~~Reserved~~	~~Reserved~~	~~Reserved~~

Bits	Galileo	GLONASS	BeiDou	GPS PRN	SBAS	QZSS	IRNSS
13096	Reserved	Reserved	Reserved	PRN 42	Reserved	Reserved	Reserved
13195	Reserved	Reserved	Reserved	PRN 43	Reserved	Reserved	Reserved
13298	Reserved	Reserved	Reserved	PRN 44	Reserved	Reserved	Reserved
13399	Reserved	Reserved	Reserved	PRN 45	Reserved	Reserved	Reserved
134100	Reserved	Reserved	Reserved	PRN 46	Reserved	Reserved	Reserved
135101	Reserved	Reserved	Reserved	PRN 47	Reserved	Reserved	Reserved
136102	Reserved	Reserved	Reserved	PRN 48	Reserved	Reserved	Reserved
137103	Reserved	Reserved	Reserved	PRN 49	Reserved	Reserved	Reserved
138104	Reserved	Reserved	Reserved	PRN 50	Reserved	Reserved	Reserved
139105	Reserved	Reserved	Reserved	PRN 51	Reserved	Reserved	Reserved
140106	Reserved	Reserved	Reserved	PRN 52	Reserved	Reserved	Reserved
141107	Reserved	Reserved	Reserved	PRN 53	Reserved	Reserved	Reserved
142108	Reserved	Reserved	Reserved	PRN 54	Reserved	Reserved	Reserved
143109	Reserved	Reserved	Reserved	PRN 55	Reserved	Reserved	Reserved
144110	Reserved	Reserved	Reserved	PRN 56	Reserved	Reserved	Reserved
145111	Reserved	Reserved	Reserved	PRN 57	Reserved	Reserved	Reserved
146112	Reserved	Reserved	Reserved	PRN 58	Reserved	Reserved	Reserved
147113	Reserved	Reserved	Reserved	PRN 59	Reserved	Reserved	Reserved
148114	Reserved	Reserved	Reserved	PRN 60	Reserved	Reserved	Reserved
149115	Reserved	Reserved	Reserved	PRN 61	Reserved	Reserved	Reserved
150116	Reserved	Reserved	Reserved	PRN 62	Reserved	Reserved	Reserved
151117	Reserved	Reserved	Reserved	PRN 63	Reserved	Reserved	Reserved

SVID = Space Vehicle ID
Freq. = Carrier Frequency Number
RCN = Ranging Code Number
PRN = Pseudorandom Noise Number

DOORS ID	IS-GPS-200	Object Type
IS200-2129	**30.3.3.10.1.2.2.12 Reserved for ISM**	Header
IS200-2130	Bits 118 through 204 of the GPS ISM Packet are reserved for future ISD use.	Info-Only
IS200-1817	**30.3.3.10.1.2.2.13 Integrity Support Message Cyclic Redundancy Check**	Header
IS200-1818	Bits ~~245~~205 through ~~276~~236 of ~~MT-40~~the ~~are~~GPS ISM Packet is a 32-bit Cyclic Redundancy Check (CRC) specific to the ~~ISM~~ISD ~~parameters.~~in ~~The~~the ISM ~~CRC~~Packet. ~~will~~This ~~cover~~CRC ~~only~~covers the ~~ISM~~ ~~parameters~~data in ~~Message Type 40, (Bits 39 to 244). Refer to DO-246E Change~~bits 1 ~~document for more~~through ~~details~~204 ~~on~~in the GPS ISM ~~CRC~~Packet.	Info-Only
IS200-2136	This sequence of bits and the ISM CRC may be represented as polynomials of a bit position operator X (the powers of which denote the distance of the bit from the end of the applicable bit sequence) with coefficients from the Galois field of two elements, or GF(2). GF(2) is the finite field constructed on the set {0,1} and the operations of modulo-2 addition and modulo-2 multiplication. In this representation, the CRC is the remainder polynomial r(X) left over from the polynomial division of the ISM Packet bits 1 through 204 (right-padded with 32 zeros and represented as $m(X) \cdot X^{32}$) by a generator polynomial g(X). The generator polynomial, g(X), which does not depend on the specific ISM Packet data, is: $g(X) = X^{32} + X^{31} + X^{24} + X^{22} + X^{16} + X^{14} + X^8 + X^7 + X^5 + X^3 + X + 1$ If the terms b_1 through b_{204} signify bits 1 through 204 of the GPS ISM Packet, the information field, m(X), is: $m(X) = b_1X^{203} + b_2X^{202} + b_3X^{201} + ... + b_{203}X + b_{204}$ If the terms b_{205} through b_{236} signify bits 205 through 236 of the GPS ISM Packet, the remainder polynomial, r(X), is: $r(X) = b_{205}X^{31} + b_{206}X^{30} + b_{207}X^{29} + ... + b_{235}X + b_{236}$ The ISD in the GPS ISM Packet is valid when the ISM CRC matches r(X) in the following equation: $r(X) = m(X) \cdot X^{32} \bmod g(X)$	Requirement

DOORS ID	IS-GPS-200	Object Type
IS200-2132	***30.3.3.10.2* Use of GPS ISM Data**	Header
IS200-2133	To calculate the nominal pseudorange error bias (b_{nom}), use the following equation:	Requirement
IS200-2134	$b_{nom} = \beta_{nom} + \gamma_{nom}$ IAURA	Info-Only
IS200-2135	Where IAURA is defined in section 30.3.3.1.1.	Info-Only