**3GPP TSG-RAN2 Meeting #109-bis-e *R2-2003998***

**Online, 20th April 2020 - 30th April 2020**

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| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| *CR-Form-v12.0* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
|  | | | | | | | | |
|  | **37.355** | **CR** | **0257** | **rev** | **1** | **Current version:** | **16.0.0** |  |
|  | | | | | | | | |
| *For* [***HE******LP***](http://www.3gpp.org/3G_Specs/CRs.htm#_blank)*on using this form: comprehensive instructions can be found at* [*http://www.3gpp.org/Change-Requests*](http://www.3gpp.org/Change-Requests)*.* | | | | | | | | |
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| ***Proposed changeaffects:*** | UICC apps |  | ME | **X** | Radio Access Network |  | Core Network | **X** |

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|  | | | | | | | | | | |
| ***Title:*** | Update missed out definition for Information Element NavModel-NavIC-KeplerianSet | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** | Reliance Jio | | | | | | | | | |
| ***Source to TSG:*** | R2 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | LCS\_NAVIC-core | | | | |  | ***Date:*** | | | 2020-04-27 |
|  |  | | | |  | |  | | |  |
| ***Category:*** | F |  | | | | | ***Release:*** | | | Rel-16 |
|  | *Use one of the following categories:* ***F*** *(correction)* ***A*** *(mirror corresponding to a change in an earlier release)* ***B*** *(addition of feature),* ***C*** *(functional modification of feature)* ***D*** *(editorial modification)*  Detailed explanations of the above categories can be found in 3GPP [TR 21.900](http://www.3gpp.org/ftp/Specs/html-info/21900.htm). | | | | | | | | *Use one of the following releases: Rel-8 (Release 8) Rel-9 (Release 9) Rel-10 (Release 10) Rel-11 (Release 11) Rel-12 (Release 12)* *Rel-13 (Release 13) Rel-14 (Release 14) Rel-15 (Release 15) Rel-16 (Release 16)* | |
|  |  | | | | | | | | | |
| ***Reason for change:*** | | Populated the IE NavModel-NavIC-KeplerianSet definition | | | | | | | | |
|  | |  | | | | | | | | |
| ***Summary of change:*** | | GNSS assistance data elements section updated with deinition of IE NavModel-NavIC-KeplerianSet | | | | | | | | |
|  | |  | | | | | | | | |
| ***Consequences if not approved:*** | | ASN.1 compilation breaks. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Clauses affected:*** | | 6.5.2.2 | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **Y** | **N** |  | | | |  | | |
| ***Other specs*** | |  | **X** | Other core specifications | | | | TS/TR ... CR ... | | |
| ***affected:*** | |  | **X** | Test specifications | | | | TS/TR ... CR ... | | |
| ***(show related CRs)*** | |  | **X** | O&M Specifications | | | | TS/TR ... CR ... | | |
|  | |  | | | | | | | | |
| ***Other comments:*** | |  | | | | | | | | |
|  | |  | | | | | | | | |
| ***This CR's revision history:*** | | Revision of R2-2003821 | | | | | | | | |

----------------------------Start of change----------------------

## 6.5 Positioning Method IEs

**< Unchanged parts are omitted >**

### 6.5.2 A-GNSS Positioning

**< Unchanged parts are omitted >**

#### 6.5.2.2 GNSS Assistance Data Elements

**< Unchanged parts are omitted >**

#### – *NavModel-BDS-KeplerianSet2*

The IE *NavModel-BDS-KeplerianSet2* is used for BDS B1C defined in [39].

-- ASN1START

NavModel-BDS-KeplerianSet2-r16 ::= SEQUENCE {

bdsIODE-r16 INTEGER (0..255),

bdsToe-r16 INTEGER (0..2047),

bdsDeltaA-r16 INTEGER (-33554432..33554431),

bdsAdot-r16 INTEGER (-16777216..16777216),

bdsDeltaN0-r16 INTEGER (-65536..65535),

bdsDeltaN0dot-r16 INTEGER (-4194304..4194303),

bdsM0-r16 INTEGER (-4294967296..4294967295),

bdsE-r16 INTEGER (0..8589934591),

bdsOmega-r16 INTEGER (-4294967296..4294967295),

bdsOmega0-r16 INTEGER (-4294967296..4294967295),

bdsI0-r16 INTEGER (-4294967296..4294967295),

bdsOmegaDot-r16 INTEGER (-262144..262143),

bdsI0Dot-r16 INTEGER (-16384..16383),

bdsCuc-r16 INTEGER (-1048576..1048575),

bdsCus-r16 INTEGER (-1048576..1048575),

bdsCrc-r16 INTEGER (-8388608..8388607),

bdsCrs-r16 INTEGER (-8388608..8388607),

bdsCic-r16 INTEGER (-32768..32767),

bdsCis-r16 INTEGER (-32768..32767),

...

}

-- ASN1STOP

| *NavModel-BDS-KeplerianSet2* field descriptions |
| --- |
| ***bdsIODE***  Parameter, Issue Of Data, Ephemeris (IODE), see [39], 7.4.1. |
| ***bdsToe***  Parameter toe, Ephemeris reference time (seconds), defined in [39], 7.7.1.  Scale factor 300 seconds. |
| ***bdsDeltaA***  Parameter A, Semi-major axis difference at reference time (meter), defined in [39], 7.7.1.  Scale factor 2-9 meters. |
| ***bdsAdot***  Parameter , Change rate in semi-major axis (meter/sec), defined in [39], 7.7.1  Scale factor 2-21 meter/sec. |
| ***bdsDeltaN0***  Parameter n0, Mean motion difference from computed value at reference time (semi-circles /sec), defined in [39], 7.7.1  Scale factor 2-44 semi-circles /sec. |
| ***bdsDeltaN0dot***  Parameter n0dot, Rate of mean motion difference from computed value at reference time (semi-circles /sec2), defined in [39], 7.7.1  Scale factor 2-57 semi-circles /sec2. |
| ***bdsM0***  Parameter M0, Mean anomaly at reference time (semi-circles) [39].  Scale factor 2-32 semi-circles. |
| ***bdsE***  Parameter e, Eccentricity [39].  Scale factor 2-34. |
| ***bdsOmega***  Parameter  Argument of perigee (semi-circles) [39].  Scale factor 2-32 semi-circles. |
| ***bdsOmega0***  Parameter0, Longitude of ascending node of orbital plane at weekly epoch (semi-circles) [39].  Scale factor 2-32 semi-circles. |
| ***bdsI0***  Parameter i0, Inclination angle at reference time (semi-circles) [39]  Scale factor 2-32 semi-circles. |
| ***bdsOmegaDot***  Parameter , Rate of right ascension (semi-circles/sec) [39].  Scale factor 2-44 semi-circles/sec. |
| ***bdsI0Dot***  Parameter i0dot, Rate of inclination angle (semi-circles/sec) [39].  Scale factor 2-44 semi-circles/sec. |
| ***bdsCuc***  Parameter Cuc, Amplitude of cosine harmonic correction to the argument of latitude (radians) [39].  Scale factor 2-30 radians. |
| ***bdsCus***  Parameter Cus, Amplitude of sine harmonic correction to the argument of latitude (radians) [39].  Scale factor 2-30 radians. |
| ***bdsCrc***  Parameter Crc, Amplitude of cosine harmonic correction term to the orbit radius (meters) [39].  Scale factor 2-8 meters. |
| ***bdsCrs***  Parameter Crs, Amplitude of sine harmonic correction term to the orbit radius (meters) [39].  Scale factor 2-8 meters. |
| ***bdsCic***  Parameter Cic, Amplitude of cosine harmonic correction term to the angle of inclination (radians) [39].  Scale factor 2-30 radians. |
| ***bdsCis***  Parameter Cis, Amplitude of sine harmonic correction term to the angle of inclination (radians) [39].  Scale factor 2-30 radians. |

#### – *NavModel-NavIC-KeplerianSet*

-- ASN1START

NavModel-NavIC-KeplerianSet-r16 ::= SEQUENCE {

navic-Toe-r16 INTEGER (0 .. 65536),

navic-URAI-r16 INTEGER (0 .. 15),

navic-W-r16 INTEGER (-2147483648..2147483647),

navic-DeltaN-r16 INTEGER (-2097152.. 2097151),

navic-M0-r16 INTEGER (-2147483648..2147483647),

navic-OmegaDot-r16 INTEGER (-2147483648..2147483647),

navic-E-r16 INTEGER (0..4294967295),

navic-IDot-r16 INTEGER (-8192..8191),

navic-APowerHalf-r16 INTEGER (0.. 4294967295),

navic-I0-r16 INTEGER (-2147483648..2147483647),

navic-Omega0-r16 INTEGER (-2147483648..2147483647),

navic-Crs-r16 INTEGER (-32768..32767),

navic-Cis-r16 INTEGER (-32768..32767),

navic-Cus-r16 INTEGER (-32768..32767),

navic-Crc-r16 INTEGER (-32768..32767),

navic-Cic-r16 INTEGER (-32768..32767),

navic-Cuc-r16 INTEGER (-32768..32767),

...

}

-- ASN1STOP

| *NavModel-NavIC-KeplerianSet* field descriptions |
| --- |
| ***navic-Toe***  Parameter toe, time-of-ephemeris in seconds [38].  Scale factor 24 seconds. |
| ***navic-URAI***  Parameter User Range Accuracy Index (in meters). This is a one-sigma estimate of the user range errors in the navigation data for the transmitting satellite as described under clause 6.2.1.4 in [38] |
| ***navic-W***  Parameter ω, argument of perigee (semi-circles) [38].  Scale factor 2-31 semi-circles. |
| ***navic-DeltaN***  Parameter n, mean motion difference from computed value (semi-circles/sec) [38]  Scale factor 2-41 semi-circles/second |
| ***navic-M0***  Parameter M0, mean anomaly at reference time (semi-circles) [38]  Scale factor 2-31 semi-circles. |
| ***navic-OmegaDot***  Parameter OMEGAdot, rate of change of right ascension (semi-circles/sec) [38]  Scale factor 2-41 semi-circles/second |
| ***navic-E***  Parameter e, eccentricity [38]  Scale factor 2-33. |
| ***navic-IDot***  Parameter Idot, rate of change of inclination angle (semi-circles/sec) [38]  Scale factor 2-43 semi-circles/second. |
| ***navic-APowerHalf***  Parameter sqrtA, square root of semi-major Axis in (meters)½ [38]  Scale factor 2-19 meters ½. |
| ***navic-I0***  Parameter i0, inclination angle at reference time (semi-circles) [38]  Scale factor 2-31 semi-circles. |
| ***navic-Omega0***  Parameter OMEGA0, longitude of ascending node of orbit plane at weekly epoch (semi-circles) [38]  Scale factor 2-31 semi-circles. |
| ***navic-Crs***  Parameter Crs, amplitude of the sine harmonic correction term to the orbit radius (meters) [38]  Scale factor 2-4 meters |
| ***navic-Cis***  Parameter Cis, amplitude of the sine harmonic correction term to the angle of inclination (radians) [38]  Scale factor 2-28 radians |
| ***navic-Cus***  Parameter Cus, amplitude of the sine harmonic correction term to the argument of latitude (radians) [38]  Scale factor 2-28 radians |
| ***navic-Crc***  Parameter Crc, amplitude of the cosine harmonic correction term to the orbit radius (meters) [38]  Scale factor 2-4 meters |
| ***navic-Cic***  Parameter Cic, amplitude of the cosine harmonic correction term to the angle of inclination (radians) [38]  Scale factor 2-28 radians |
| ***navic-Cuc***  Parameter Cuc, amplitude of the cosine harmonic correction term to the argument of latitude (radians) [38]  Scale factor 2-28 radians |

----------------------------End of change----------------------