1. **Test Dataset: AA400001**

**S‐58 Recommended ENC Validation Checks covered in this section:**

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| **S‐58 Check** | **Description** |
| 14 | For each feature object of geometric primitive area where the exterior boundary shares more than one node with an interior boundary. |
| 15 | For each feature object of geometric primitive area where the exterior boundary or an interior boundary is not closed. |
| 16 | For each feature object of geometric primitive area where the exterior boundary is not encoded clockwise. |
| 17 | For each feature object of geometric primitive area where an interior boundary is not encoded counter-clockwise. |
| 42 | For each edge which is referenced by Group 1 objects AND is not referenced by a M\_COVR meta object with CATCOV is Equal to 1 (coverage available) which does not appear twice with different ORNT (forward and reverse) values. |
| 54a | For each FORSTC, LNDMRK or SILTNK feature which is not COVERED\_BY a BRIDGE, COALNE, DAMCON, FLODOC, LNDARE, OFSPLF, PILPNT, PONTON, PYLONS, SLCONS or UWTROC feature object. |
| 54b | For each DAYMAR feature object which is not a slave in a master/slave relationship AND is not COVERED\_BY a BRIDGE, COALNE, DAMCON, FLODOC, LNDARE, OFSPLF, PILPNT, PONTON, PYLONS, SLCONS or UWTROC feature object. |

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| **Dataset Name** | AA400001 | **S‐58 Check** | 14 | | | **Type** | | C |
| **S-58 Description** | For each feature object of geometric primitive area where the exterior boundary shares more than one node with an interior boundary. | | | | | | | |
| **Message** | Exterior and interior boundaries share more than one node. | | | | | | | |
| **Solution** | Amend boundary to share at most one node. | | **Conformity** | Part 3 (4.7.3) | | | | |
| **Test Case No. 1** | Two SBDARE (A) objects share more than one node. | | | | | | | |
| **Location** | 32°20'25.03"S 60°54'41.85"E | **S57 Encoding** | SBDARE (A) | NATSUR=9  WATLEV=4 | | | | |
| **FOID or VRID** | AA 1516773422 00001 |  |  |  | | | | |
| **Screen Capture** |  | | | | | | | |
| **Expected Test Results** | 14: An error “Outer or inner boundaries share more than one node” must be triggered. | | | | | | | |
| **Secondary Errors** | 78: An error “Check that no area feature has incorrect topology” must be triggered.  82: An error “edge is used more than once” must be triggered. | | | | | | | |
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| **Dataset Name** | AA400001 | **S‐58 Check** | 15 | | | **Type** | | C |
| **S-58 Description** | For each feature object of geometric primitive area where the exterior boundary or an interior boundary is not closed. | | | | | | | |
| **Message** | First and last edge of an area boundary do not meet at a common connected node. | | | | | | | |
| **Solution** | Amend edges bounding the area to meet at a common connected node. | | **Conformity** | Part 3 (4.7.3.1) | | | | |
| **Test Case No. 1** | SLCONS bounding an area without meeting at a common connected node. | | | | | | | |
| **Location** | 32°20'22.23"S 60°54'35.90"E | **S57 Encoding** | SLCONS (A) | WATLEV=2 | | | | |
| **FOID or VRID** | AA 1513852500 00001 |  |  |  | | | | |
| **Screen Capture** |  | | | | | | | |
| **Expected Test Results** | 15: An error “First and last edge of an area boundary do not meet at a common connected node” must be triggered. | | | | | | | |
| **Secondary Errors** | None | | | | | | | |
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| **Dataset Name** | AA400001 | **S‐58 Check** | 16 | | | **Type** | | C |
| **S-58 Description** | For each feature object of geometric primitive area where the exterior boundary is not encoded clock wise. | | | | | | | |
| **Message** | Area exterior boundary not encoded clockwise. | | | | | | | |
| **Solution** | Ensure area exterior boundary is encoded clockwise. | | **Conformity** | Part 3 (4.7.3.2) | | | | |
| **Test Case No. 1** | SEAARE (A) outer boundary is not encoded clockwise. | | | | | | | |
| **Location** | 32°20'28.17"S 60°54'34.61"E | **S57 Encoding** | SEAARE (A) | OBJNAM=2 | | | | |
| **FOID or VRID** | AA 1513849309 00001 |  |  |  | | | | |
| **Screen Capture** |  | | | | | | | |
| **Expected Test Results** | 16: An error “Area outer boundary not encoded clockwise” must be triggered. | | | | | | | |
| **Secondary Errors** | None | | | | | | | |
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| **Dataset Name** | AA400001 | **S‐58 Check** | 17 | | | **Type** | | C |
| **S-58 Description** | For each feature object of geometric primitive area where an interior boundary is not encoded counter-clockwise. | | | | | | | |
| **Message** | Area interior boundary not encoded counter-clockwise. | | | | | | | |
| **Solution** | Ensure area interior boundary is encoded counter-clockwise. | | **Conformity** | Part 3 (4.7.3.2) | | | | |
| **Test Case No. 1** | CBLARE (A) inner boundary is encoded as clockwise. | | | | | | | |
| **Location** | 32°20'22.19"S 60°54'46.96"E | **S57 Encoding** | CBLARE (A) |  | | | | |
| **FOID or VRID** | AA 1516772927 00001 |  |  |  | | | | |
| **Screen Capture** |  | | | | | | | |
| **Expected Test Results** | 17: An error “Area inner boundary not encoded counter-clockwise” must be triggered. | | | | | | | |
| **Secondary Errors** | None | | | | | | | |
|  | | | | | | | | |
| **Dataset Name** | AA400001 | **S‐58 Check** | 42 | | | **Type** | | C |
| **S-58 Description** | For each edge which is referenced by Group 1 objects AND is not referenced by a M\_COVR meta object with CATCOV is Equal to 1 (coverage available) which does not appear twice with different  ORNT (forward and reverse) values. | | | | | | | |
| **Message** | Group 1 coverage is not correct, a hole or an overlap exists. | | | | | | | |
| **Solution** | Amend Group 1 coverage, to remove hole or overlap. | | **Conformity** | Appendix B.1  (3.10.1) and  Logical consistency | | | | |
| **Test Case No. 1** | Created edge which is referenced by only one Group 1 feature. Also created the overlap of group 1 features. | | | | | | | |
| **Location** | 32°20'50.74"S 60°54'18.09"E | **S57 Encoding** | LNDARE (A)  DEPARE (A) | DRVAL1=-2  DRVAL2=0 | | | | |
| **FOID or VRID** | AA 1516774344 00001  AA 1516773533 00002 |  |  |  | | | | |
| **Screen Capture** |  | | | | | | | |
| **Expected Test Results** | 42: An error “Group 1 coverage is not correct, a hole or an overlap exists” must be triggered. | | | | | | | |
| **Secondary Errors** | 519a: An additional error “Skin of the earth (Group1) objects do not cover the data coverage (M\_COVR=1)” must be triggered. | | | | | | | |
|  | | | | | | | | |
| **Dataset Name** | AA400001 | **S‐58 Check** | 54a | | **Type** | | C | |
| **S-58 Description** | For each FORSTC, LNDMRK or SILTNK feature which is not COVERED\_BY a BRIDGE, COALNE, DAMCON, FLODOC, LNDARE, OFSPLF, PILPNT, PONTON, PYLONS, SLCONS or UWTROC feature object. | | | | | | | |
| **Message** | FORSTC, LNDMRK or SILTNK not covered by a suitable supporting object. | | | | | | | |
| **Solution** | Amend object to ensure it is situated on a suitable object. | | **Conformity** | Logical consistency | | | | |
| **Test Case No. 1** | FORSTC, LNDMRK and SILTNK created in DEPARE (A). | | | | | | | |
| **Location** | 32°20’16.58”S 60°54’52.37”E | **S57 Encoding** | SILTNK (A, P)  LNDMRK (A, L, P)  FORSTC (A, L, P) | CATLMK=2  CONVIS=1 | | | | |
| **FOID or VRID** | AA 1771863634 00048  AA 4237372512 00049  AA 0270223935 00052  AA 1271734127 00051  AA 3074409273 00050  AA 1475377245 00054  AA 2879784726 00055  AA 3889370021 00053 |  |  |  | | | | |
| **Screen Capture** |  | | | | | | | |
| **Expected Test Results** | 54a: 8 errors “FORSTC, LNDMRK or SILTNK not covered by a suitable supporting object.” must be triggered. | | | | | | | |
| **Secondary Errors** | None | | | | | | | |
|  | | | | | | | | |
| **Dataset Name** | AA400001 | **S‐58 Check** | 54b | | | **Type** | | C |
| **S-58 Description** | For each DAYMAR feature object which is not a slave in a master/slave relationship AND is not  COVERED\_BY a BRIDGE, COALNE, DAMCON, FLODOC, LNDARE, OFSPLF, PILPNT, PONTON, PYLONS,  SLCONS or UWTROC feature object. | | | | | | | |
| **Message** | DAYMAR not covered by a suitable supporting object. | | | | | | | |
| **Solution** | Amend object to ensure it is situated on a suitable object. | | **Conformity** | Logical consistency | | | | |
| **Test Case No. 1** | Daymark point feature without any structure has been created in water. | | | | | | | |
| **Location** | 32°20'49.15"S 60°54'15.26"E | **S57 Encoding** | DAYMAR (P) | COLOUR = 1  TOPSHP = 1 | | | | |
| **FOID or VRID** | AA 3074079070 00047 |  |  |  | | | | |
| **Screen Capture** |  | | | | | | | |
| **Expected Test Results** | 54b: An error “DAYMAR not covered by a suitable supporting object” must be triggered. | | | | | | | |
| **Secondary Errors** | 1775: An additional error “Equipment object within DEPARE, DRGARE or UNSARE without an appropriate supporting structure object or underlying object” must be triggered. | | | | | | | |

1. **Test Dataset: AA400002**

**S‐58 Recommended ENC Validation Checks covered in this section:**

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| **S‐58 Check** | **Description** |
| 507 | If any mandatory attributes are not Present. |

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| **Dataset Name** | AA400002 | **S‐58 Check** | 507 | **Type** | C |
| **S-58 Description** | If any mandatory attributes are not Present. | | | | |
| **Message** | Mandatory attributes are not encoded. | | | | |
| **Solution** | Populate mandatory attributes (If unknown encode attribute with empty value). | | **Conformity** | 3.5.2 and  Supplement No.3  Ch.4 (3.5.2.1) | |
| **Test Case No. 1** | Objects without mandatory attributes have been created as listed in the 4th column below. | | | | |
| **Location** | **S57 Object** | Missing Mandatory Attribute | FOID |  | |
| **FOID or VRID** | ADMARE (A)  ARCSLN (A)  ASLXIS (L)  BCNCAR (P)  BCNCAR (P)  BCNCAR (P)  BCNISD (P)  BCNISD(P)  BCNLAT (P)  BCNLAT (P)  BCNLAT (P)  BCNSAW (P)  BCNSAW (P)  BCNSPP (P)  BCNSPP (P)  BCNSPP (P)  BERTHS (P)  BERTHS (A)  BERTHS (L)  BOYCAR (P)  BOYCAR (P)  BOYCAR (P)  BOYINB(P)  BOYINB (P)  BOYISD (P)  BOYISD (P)  BOYLAT (P)  BOYLAT (P)  BOYLAT (P)  BOYSAW (P)  BOYSAW (P)  BOYSPP (P)  BOYSPP (P)  BOYSPP (P)  BRIDGE (A)  BRIDGE (A)  BRIDGE(L)  BRIDGE(L)  CBLOHD (L)  CONVYR (A)  CONVYR(L)  CONZNE (A)  COSARE (A)  CTNARE (P)  CTNARE (A)  CURENT (P)  CURENT (P)  CUSZNE (A)  DAYMAR (P)  DAYMAR (P)  DAYMAR (P)  DEPARE (A)  DEPARE (A)  DEPCNT (L)  DRGARE (A)  DRGARE (A)  DWRTCL (L)  DWRTCL (L)  DWRTCL (L)  DWRTPT (A)  DWRTPT (A)  DWRTPT (A)  EXEZNE (A)  FERYRT (A)  FERYRT (L)  FOGSIG (P)  FSHZNE (A)  GATCON (A)  GATCON (L)  GATCON (P)  HRBFAC (A)  HRBFAC (P)  ICEARE (A)  LITVES (P)  LIGHTS (P)  LIGHTS (P)  LIGHTS (P)  LIGHTS (P)  LIGHTS (P)  LIGHTS (P)  LIGHTS (P)  LIGHTS (P)  LIGHTS (P)  LITFLT (P)  LNDELV (L)  LNDELV (P)  LNDMRK (P)  LNDMRK (P)  LNDRGN (P)  LNDRGN (A)  LOCMAG (A)  LOCMAG (L)  LOCMAG (P)  MAGVAR (A)  MAGVAR (L)  MAGVAR (P)  MARCUL (A)  MARCUL (A)  MARCUL (L)  MARCUL (L)  MARCUL (P)  MARCUL (P)  MORFAC (A)  MORFAC (L)  MORFAC (P)  NAVLNE (L)  NAVLNE (L)  NEWOBJ (A)  NEWOBJ (L)  NEWOBJ (P)  OBSTRN (A)  OBSTRN (L)  OBSTRN (P)  PIPOHD (L)  PRCARE (A)  PRCARE (P)  PRDARE (A)  PRDARE (P)  PYLONS (A)  PYLONS (P)  RADLNE (L)  RCRTCL (L)  RCTLPT (A)  RCTLPT (L)  RDOCAL (L)  RDOCAL (L)  RDOCAL (P)  RDOCAL (P)  RECTRC (A)  RECTRC (A)  RECTRC (A)  RECTRC (L)  RECTRC (L)  RECTRC (L)  RESARE (A)  RTPBCN (P)  SBDARE (A)  SBDARE (L)  SBDARE (P)  SEAARE (A)  SEAARE (P)  SISTAT (P)  SISTAW (P)  SMCFAC (A)  SMCFAC (P)  STSLNE (L)  SWPARE (A)  TESARE (A)  TOPMAR (P)  TSSLPT (A)  TS\_FEB (A)  TS\_FEB (A)  TS\_FEB (A)  TS\_FEB (P)  TS\_FEB (P)  TS\_FEB (P)  TS\_PAD (A)  TS\_PAD (P)  TS\_PNH (A)  TS\_PNH (A)  TS\_PNH (P)  TS\_PNH (P)  TS\_PRH (A)  TS\_PRH (A)  TS\_PRH (P)  TS\_PRH (P)  TS\_TIS (A)  TS\_TIS (A)  TS\_TIS (A)  TS\_TIS (A)  TS\_TIS (P)  TS\_TIS (P)  TS\_TIS (P)  TS\_TIS (P)  TWRTPT (A)  TWRTPT (A)  T\_HMON (A)  T\_HMON (A)  T\_HMON (P)  T\_HMON (P)  T\_NHMN (A)  T\_NHMN (A)  T\_NHMN (P)  T\_NHMN (P)  T\_TIMS (A)  T\_TIMS (A)  T\_TIMS (A)  T\_TIMS (P)  T\_TIMS (P)  T\_TIMS (P)  UWTROC (P)  UWTROC (P)  VEGATN (A)  VEGATN (L)  VEGATN (P)  WATTUR (A)  WATTUR (L)  WATTUR (P)  WRECKS (A)  WRECKS (A)  WRECKS (P)  WRECKS (P)  M\_ACCY (A)  -  -  M\_COVR (A)  M\_CSCL (A)  M\_HOPA (A)  M\_HOPA (A)  M\_NSYS (A)  M\_QUAL (A)  M\_QUAL (A)  M\_SDAT (A)  M\_VDAT (A) | JRSDTN  NATION  NATION  BCNSHP  COLOUR  CATCAM & COLPAT  COLOUR  BCNSHP  BCNSHP  CATLAM  COLOUR  BCNSHP  COLOUR  CATSPM  BCNSHP  COLOUR  OBJNAM  OBJNAM  OBJNAM  BOYSHP  CATCAM  COLOUR  BOYSHP  COLOUR  BOYSHP  COLOUR  COLOUR  BOYSHP  CATLAM  BOYSHP  COLOUR  CATSPM  BOYSHP  COLOUR  VERCLR  VERCCL  VERCLR  CATBRG  VERCSA  VERCLR  VERCLR  NATION  NATION  INFORM or TXTDSC  INFORM or TXTDSC  CURVEL  ORIENT  NATION  COLOUR & TOPSHP  COLOUR  TOPSHP  DRVAL1  DRVAL2  VALDCO  DRVAL1  DRVAL1  TRAFIC  ORIENT  CATTRK  TRAFIC  DRVAL1  ORIENT  NATION  CATFRY  CATFRY  CATFOG  NATION  HORCLR  HORCLR  HORCLR  CATHAF  CATHAF  CATICE  COLOUR  COLOUR  SIGPER  SIGGRP  ORIENT  SECTR1  SECTR2  CATLIT or LITCHR  COLOUR  ORIENT  COLOUR  ELEVAT  ELEVAT  CATLMK  CONVIS  CATLND or OBJNAM  CATLND or OBJNAM  VALLMA  VALLMA  VALLMA  RYRMGV  VALACM  VALMAG  VALSOU  WATLEV  VALSOU  WATLEV  VALSOU  WATLEV  CATMOR  CATMOR  CATMOR  ORIENT  CATNAV  CLSDEF  CLSDEF  CLSNAM  VALSOU  VALSOU  WATLEV  VERCLR  INFORM or TXTDSC  INFORM or TXTDSC  CATPRA  CATPRA  CATPYL  CATPYL  ORIENT  CATTRK  ORIENT  ORIENT  ORIENT  TRAFIC  ORIENT  TRAFIC  CATTRK  TRAFIC  ORIENT  CATTRK  TRAFIC  ORIENT  CATREA or RESTRN  CATRTB  NATSUR or ATQUA  NATSUR or ATQUA  NATSUR or ATQUA  CATSEA or OBJNAM  CATSEA or OBJNAM  CATSIT  CATSIW  CATSCF  CATSCF  NATION  DRVAL1  NATION  TOPSHP  ORIENT  CAT\_TS  CURVEL  ORIENT  CAT\_TS  CURVEL  ORIENT  TS\_TSP  TS\_TSP  T\_MTOD  T\_THDF  T\_MTOD  T\_THDF  T\_MOTD  T\_VAHC  T\_MOTD  T\_VAHC  TIMEND  TIMSTA  TS\_TSV  T\_TINT  TIMEND  TIMSTA  TS\_TSV  T\_TINT  ORIENT  TRAFIC  T\_MTOD  T\_VAHC  T\_MTOD  T\_VAHC  T\_MOTD  T\_THDF  T\_MOTD  T\_THDF  TIMEND  TIMSTA  T\_HWLW  TIMEND  TIMSTA  T\_HWLW  VALSOU  WATLEV  CATVEG  CATVEG  CATVEG  CATWAT  CATWAT  CATWAT  WATLEV  CATWRK or VALSOU  WATLEV  CATWRK or VALSOU  HORACC or VERACC or POSACC or SOUACC  CATCOV  CSCALE  HORDAT  SHIPAM  MARSYS or ORIENT  CATZOC  CATZOC  VERDAT  VERDAT | AA 0530461915 00689  AA 3496719125 00004  AA 1447035004 00005  AA 1800597279 00005  AA 0545083054 00796  AA 3428788698 00004  AA 4266219750 00567  AA 2941575223 00008  AA 3287691974 00009  AA 0078989068 00010  AA 3145674976 00016  AA 1153938275 00011  AA 0871898662 00549  AA 2014947142 00021  AA 2861861109 00024  AA 1598464134 00020  AA 0089698594 00696  AA 2029482984 00693  AA 1432384515 00694  AA 2041563891 00001  AA 2875621777 00002  AA 3892085572 00015  AA 2848674726 00012  AA 4258685669 00798  AA 3605557902 00003  AA 2198090225 00702  AA 4118631995 00704  AA 0692452959 00014  AA 0214365721 00013  AA 3471407376 00015  AA 2314264704 00706  AA 0502796792 00016  AA 2504625015 00017  AA 2467278849 00708  AA 0000000160 00001  AA 2740213102 00539  AA 0000004388 00001  AA 0000000159 00001  AA 0000004340 00001  AA 0000004492 00001  AA 2772540457 00699  AA 0103112862 00695  AA 1079672998 00691  AA 1466489369 00677  AA 2519687966 00687  AA 4054974434 00022  AA 0079557394 00551  AA 1344273938 00709  AA 0000004450 00001  AA 1200497722 00712  AA 1209347525 00006  AA 2469013626 00521  AA 2604850736 00605  AA 0936110632 00670  AA 2498682264 00711  AA 3942293340 00686  AA 1588378561 00019  AA 0834307021 00006  AA 1125268850 00018  AA 0720930177 00021  AA 4231855440 00020  AA 0797359693 00546  AA 0367697121 00697  AA 2160482161 00685  AA 1301617315 00682  AA 1655766254 00548  AA 0945996894 00713  AA 2309764127 00715  AA 3872537966 00717  AA 0519629719 00719  AA 2747970503 00716  AA 0679650332 00710  AA 1432073687 00721  AA 2118025787 00722  AA 2105716918 00010  AA 1103259494 00723  AA 3329664863 00018  AA 0521632111 00023  AA 2315929374 00022  AA 2533748337 00019  AA 4243752558 00011  AA 0000000817 00001  AA 0000004490 00001  AA 2950793822 00725  AA 2456869599 00720  AA 0637444345 00023  AA 1552358594 00630  AA 0981035900 00718  AA 1307318587 00714  AA 1604466715 00724  AA 1543569125 00026  AA 1030762876 00025  AA 0473195392 00542  AA 1782162868 00732  AA 1892595195 00027  AA 2110527488 00727  AA 2884952360 00731  AA 0000000154 00001  AA 0000000156 00001  AA 4026695848 00730  AA 0000000158 00001  AA 0068932969 00729  AA 2041295873 00736  AA 1846116232 00734  AA 0030932522 00626  AA 3016594242 00026  AA 1963904057 00733  AA 0828887526 00794  AA 3701585517 00793  AA 0673042456 00792  AA 2069979401 00741  AA 2261758077 00737  AA 4009803686 00739  AA 2044762845 00740  AA 1712117592 00738  AA 2163120342 00735  AA 0549044268 00742  AA 2264254762 00028  AA 1423236820 00748  AA 0332594358 00001  AA 2153048553 00744  AA 0014521106 00728  AA 0030871141 00743  AA 2428708680 00750  AA 0000004440 00001  AA 2234584720 00754  AA 2315466569 00752  AA 0000004445 00001  AA 2501737052 00033  AA 1521181436 00032  AA 2863061538 00747  AA 0072867670 00002  AA 0792773422 00751  AA 0000004337 00001  AA 4098010845 00749  AA 2554437601 00756  AA 2827574146 00760  AA 2718339155 00758  AA 2634399138 00753  AA 1875544586 00759  AA 4236711974 00757  AA 1749600218 00745  AA 1347002690 00552  AA 1342715916 00763  AA 2088797594 00761  AA 1247770472 00755  AA 2102075430 00764  AA 2814602821 00766  AA 3027549413 00768  AA 3243248914 00770  AA 1114704627 00013  AA 0536014906 00014  AA 0868913570 00784  AA 0530436172 00015  AA 0174726393 00016  AA 0948593642 00779  AA 3446518343 00785  AA 2252227968 00780  AA 3326744555 00791  AA 4034576705 00018  AA 2428036181 00017  AA 1045866687 00786  AA 2424512482 00020  AA 0502101631 00790  AA 1648199206 00019  AA 1899210606 00787  AA 3069785503 00008  AA 2086451394 00007  AA 1407484207 00789  AA 2227110976 00009  AA 0225900949 00011  AA 2907249353 00010  AA 2539569038 00788  AA 2100841927 00012  AA 2326947757 00771  AA 2640865929 00021  AA 1708496115 00778  AA 0415272675 00001  AA 2901240749 00002  AA 1407206877 00783  AA 0000004499 00001  AA 2667706400 00777  AA 0737998458 00782  AA 0000004496 00001  AA 3510962575 00004  AA 0503017793 00003  AA 0472138330 00776  AA 3896716616 00006  AA 2586642892 00005  AA 1093789484 00781  AA 1221847555 00769  AA 1611396399 00022  AA 3941330791 00762  AA 0459192231 00765  AA 0548086024 00767  AA 1924254210 00775  AA 1253777898 00774  AA 2779478238 00772  AA 0497213196 00700  AA 1742960488 00023  AA 2845512732 00773  AA 2088746596 00024  AA 4033705290 00515  -  -  AA 3590138225 00512  AA 3073058875 00516  AA 0856737993 00025  AA 1454411558 00514  AA 2872677333 00517  AA 2002823473 00518  AA 1672053999 00511  AA 2249281725 00513  AA 2799241114 00003 |  | |
| **Screen Capture** |  | | | | |
| **Expected Test Results** | 507: 220 Errors “Mandatory attributes are not encoded“ must be triggered. | | | | |
| **Secondary Errors** | 505: An additional error “mandatory meta object classes - no M\_NSYS meta objects with MARSYS set to an explicit value exist in the dataset” must be triggered.  566: An additional error “NEWOBJ feature object with the attributes CLSDEF, CLSNAM and SYMINS not populated” must be triggered. | | | | |

1. **Test Dataset: AA400003**

**S‐58 Recommended ENC Validation Checks covered in this section:**

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| **S‐58 Check** | **Description** |
| 511 | For each feature object where any of the attributes DUNITS, HUNITS, RECDAT, RECIND, SCAMAX, PUNITS or CATQUA is Present. |
| 519a | If the combined coverage of all DEPARE, DRGARE, FLODOC, HULKES, LNDARE, PONTON and UNSARE feature objects is  Not equal to the combined coverage of all M\_COVR meta objects where CATCOV is Equal to 1 (coverage available). |
| 519b | For each DEPARE, DRGARE, FLODOC, HULKES, LNDARE, PONTON or UNSARE feature object of geometric primitive area that  OVERLAPS or is WITHIN another DEPARE, DRGARE, FLODOC, HULKES, LNDARE, PONTON or UNSARE of geometric primitive area. |
| 524 | If the DUNI subfield of the DSPM field is Not equal to 1 (metres). |
| 525 | If the PUNI subfield of the DSPM is Not equal to 1 (metres). |
| 548 | If the combined coverage of M\_COVR meta objects is Not equal to the cell extents. |
| 554 | For each edge referenced by only one M\_COVR meta object where CATCOV is Equal to 1 (coverage available) AND is also shared by more than one Group 1 feature object. |
| 1504 | If the value of the VDAT subfield of the DSPM field is Null. |
| 1510 | If the SDAT subfield of the DSPM field is Null. |
| 1513 | If the value of the HUNI subfield of the DSPM field is Not equal to 1 (metres). |

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| **Dataset Name** | AA400003 | **S‐58 Check** | 511 | | | **Type** | | C |
| **S-58 Description** | For each feature object where any of the attributes DUNITS, HUNITS, RECDAT, RECIND, SCAMAX, PUNITS or CATQUA is Present. | | | | | | | |
| **Message** | Prohibited attributes have been encoded. | | | | | | | |
| **Solution** | Remove prohibited attributes. | | **Conformity** | 3.5.3 | | | | |
| **Test Case No. 1** | M\_UNIT with attribute values for PUNITS, DUNITS, HUNITS, RECDAT and RECIND encoded. | | | | | | | |
| **Location** | 32°23'50.06"S 61°00'54.94"E | **S57 Encoding** | M\_UNIT (A) | PUNITS=1  DUNITS=1  HUNITS=1  RECDAT=28.02.2017  RECIND=AA,AA,digi | | | | |
| **FOID or VRID** | AA 1883442262 00005 |  |  |  | | | | |
| **Screen Capture** |  | | | | | | | |
| **Expected Test Results** | 511: 5 errors “Prohibited attributes have been encoded” must be triggered. | | | | | | | |
| **Secondary Errors** | 504: An additional error “Prohibited objects exist within the dataset”. | | | | | | | |
| **Test Case No. 2** | M\_QUAL with attribute values encoded for CATZOC and CATQUA; TS\_PAD with attribute value encoded for SCAMAX. | | | | | | | |
| **Location** | 32°24'00.29"S 61°01'00.53"E | **S57 Encoding** | TS\_PAD (P)  M\_QUAL (A) | SCAMAX = 30000  CATQUA = 6 | | | | |
| **FOID or VRID** | AA 2486852819 00064  AA 1596277063 00004 |  |  |  | | | | |
| **Screen Capture** |  | | | | | | | |
| **Expected Test Results** | 511: 2 errors “Prohibited attributes have been encoded” must be triggered. | | | | | | | |
| **Secondary Errors** | None | | | | | | | |
|  | | | | | | | | |
| **Dataset Name** | AA400003 | **S‐58 Check** | 519a | | | **Type** | | C |
| **S-58 Description** | If the combined coverage of all DEPARE, DRGARE, FLODOC, HULKES, LNDARE, PONTON and UNSARE feature objects is Not equal to the combined coverage of all M\_COVR meta objects where CATCOV is Equal to 1 (coverage available). | | | | | | | |
| **Message** | Skin of the earth (Group1) objects do not cover the data coverage (M\_COVR = 1). | | | | | | | |
| **Solution** | Amend Group1 object limits to match data coverage. | | **Conformity** | 3.10.1 | | | | |
| **Test Case No. 1** | Gaps in depth area. | | | | | | | |
| **Location** | 32°22'44.08"S 61°02'09.86"E | **S57 Encoding** | DEPARE (A) |  | | | | |
| **FOID or VRID** | - |  |  |  | | | | |
| **Screen Capture** |  | | | | | | | |
| **Expected Test Results** | 519a: An error “Skin of the earth (Group1) objects do not cover the data coverage (M\_COVR = 1)” must be triggered. | | | | | | | |
| **Secondary Errors** | 42: An additional error “Group 1 coverage is not correct, a hole or an overlap exists” must be triggered.  43: An additional error “DEPCNT does not coincide with two Group 1 objects” must be triggered. | | | | | | | |
|  | | | | | | | | |
| **Dataset Name** | AA400003 | **S‐58 Check** | 519b | | | **Type** | | C |
| **S-58 Description** | For each DEPARE, DRGARE, FLODOC, HULKES, LNDARE PONTON or UNSARE feature object of geometric primitive area that OVERLAPS or is WITHIN another DEPARE, DRGARE, FLODOC, HULKES, LNDARE, PONTON or UNSARE of geometric primitive area. | | | | | | | |
| **Message** | Skin of the earth (Group1) objects overlap. | | | | | | | |
| **Solution** | Ensure Group1 objects do not overlap. | | **Conformity** | 3.10.1 | | | | |
| **Test Case No. 1** | Depth area overlaps on other group 1 features. | | | | | | | |
| **Location** | 32°23'40.69"S 61°00'53.42"E | **S57 Encoding** | DEPARE  LNDARE  UNSARE  PONTON  HULKES  FLODOC  DRGARE |  | | | | |
| **FOID or VRID** | AA 0346412749 00012  AA 2385948493 00085  AA 2967393102 00087  AA 3859690026 00088  AA 0280423607 00089  AA 3284737411 00091  AA 1554182568 00093 |  |  |  | | | | |
| **Screen Capture** |  | | | | | | | |
| **Expected Test Results** | 519b: An error “Skin of the earth (Group1) objects overlap” must be triggered. | | | | | | | |
| **Secondary Errors** | 42: An additional error “Group 1 coverage is not correct, a hole or an overlap exists” must be triggered. | | | | | | | |
|  | | | | | | | | |
| **Dataset Name** | AA400003 | **S‐58 Check** | 524 | | | **Type** | | C |
| **S-58 Description** | If the DUNI subfield of the DSPM field is Not equal to 1 (metres). | | | | | | | |
| **Message** | DUNI does not equal 1 (metres). | | | | | | | |
| **Solution** | Set the DUNI subfield to 1 (metres). | | **Conformity** | 4.4 | | | | |
| **Test Case No. 1** | Depth units has been assigned as “feet”. | | | | | | | |
| **Location** | DSPM Parameters | **S57 Encoding** | - |  | | | | |
| **FOID or VRID** | - |  |  |  | | | | |
| **Screen Capture** |  | | | | | | | |
| **Expected Test Results** | 524: An error “DUNI does not equal 1 (metres)” must be triggered. | | | | | | | |
| **Secondary Errors** | None | | | | | | | |
|  | | | | | | | | |
| **Dataset Name** | AA400003 | **S‐58 Check** | 525 | | | **Type** | | C |
| **S-58 Description** | If the PUNI subfield of the DSPM is Not equal to 1 (metres). | | | | | | | |
| **Message** | PUNI does not equal 1 (metres). | | | | | | | |
| **Solution** | Set the PUNI subfield to 1 (metres). | | **Conformity** | 4.4 | | | | |
| **Test Case No. 1** | Positional Accuracy units has been assigned as “feet”. | | | | | | | |
| **Location** | DSPM Parameters | **S57 Encoding** | - |  | | | | |
| **FOID or VRID** | - |  |  |  | | | | |
| **Screen Capture** |  | | | | | | | |
| **Expected Test Results** | 525: An error “PUNI does not equal 1 (metres)” must be triggered. | | | | | | | |
| **Secondary Errors** | None | | | | | | | |
|  | | | | | | | | |
| **Dataset Name** | AA400003 | **S‐58 Check** | 548 | | **Type** | | C | |
| **S-58 Description** | If the combined coverage of M\_COVR meta objects is Not equal to the cell extents. | | | | | | | |
| **Message** | Cell not entirely covered by M\_COVR objects. | | | | | | | |
| **Solution** | Edit M\_COVR coverage to match cell extents. | | **Conformity** | 3.4 | | | | |
| **Test Case No. 1** | M\_COVR objects with CATCOV=1 and CATCOV=2 overlapping each other. Also the extents of the dataset is greater than the combined coverage of M\_COVR (CATCOV = 1 + CATCOV = 2). | | | | | | | |
| **Location** | 32°20'41.80"S 61°04'52.26"E | **S57 Encoding** | M\_COVR (A) | CATCOV=1  CATCOV=2 | | | | |
| **FOID or VRID** | AA 0657245416 00002  AA 3788377823 00001 |  |  |  | | | | |
| **Screen Capture** |  | | | | | | | |
| **Expected Test Results** | 548: An error “Cell not entirely covered by M\_COVR objects” must be triggered. | | | | | | | |
| **Secondary Errors** | 554: An error “Edge of M\_COVR (coverage available) referenced by more than one Group 1 object” must be triggered.  42: An additional error “GROUP 1 is not correct, a hole or an overlap exists” must be triggered. | | | | | | | |
|  | | | | | | | | |
| **Dataset Name** | AA400003 | **S‐58 Check** | 554 | | | **Type** | | C |
| **S-58 Description** | For each edge referenced by only one M\_COVR meta object where CATCOV is Equal to 1 (coverage available) AND is also shared by more than one Group 1 feature object. | | | | | | | |
| **Message** | Edge of M\_COVR (coverage available) referenced by more than one Group 1 object. | | | | | | | |
| **Solution** | Ensure edges on the extent of data coverage only reference one Group 1 object. | | **Conformity** | 3.10.1 | | | | |
| **Test Case No. 1** | FLODOC (A) overlapping with DEPARE feature. | | | | | | | |
| **Location** | 32°20'11.39"S 61°00'09.09"E | **S57 Encoding** | FLODOC (A)  DEPARE (A) |  | | | | |
| **FOID or VRID** | AA 3345335726 00095  AA 2628503926 00096 |  |  |  | | | | |
| **Screen Capture** |  | | | | | | | |
| **Expected Test Results** | 554: An error “Edge of M\_COVR (coverage available) referenced by more than one Group 1 object.” must be triggered. | | | | | | | |
| **Secondary Errors** | 519b: An additional error “Skin of the earth (Group1) objects overlap” must be triggered.  548: An additional error “Cell not entirely covered by M\_COVR objects” must be triggered.  42: An additional error “GROUP 1 is not correct, a hole or an overlap exists” must be triggered. | | | | | | | |
|  | | | | | | | | |
| **Dataset Name** | AA400003 | **S‐58 Check** | 1504 | | | **Type** | | C |
| **S-58 Description** | If the value of the VDAT subfield of the DSPM field is Null. | | | | | | | |
| **Message** | VDAT is not populated. | | | | | | | |
| **Solution** | Populate the VDAT subfield with the vertical datum of the cell. | | **Conformity** | 2.1.2 | | | | |
| **Test Case No. 1** | Vertical datum (VDAT) has been assigned a null value. | | | | | | | |
| **Location** | DSPM Parameters | **S57 Encoding** | - |  | | | | |
| **FOID or VRID** | - |  |  |  | | | | |
| **Screen Capture** |  | | | | | | | |
| **Expected Test Results** | 1504: An error “Vertical Datum subfield (VDAT) not populated within DPSM field” must be triggered. | | | | | | | |
| **Secondary Errors** | None | | | | | | | |
|  | | | | | | | | |
| **Dataset Name** | AA400003 | **S‐58 Check** | 1510 | | | **Type** | | C |
| **S-58 Description** | If the SDAT subfield of the DSPM field is Null. | | | | | | | |
| **Message** | SDAT is not populated. | | | | | | | |
| **Solution** | Populate the SDAT subfield with the sounding datum of the cell. | | **Conformity** | 2.1.3 | | | | |
| **Test Case No. 1** | Sounding datum (SDAT) has been assigned a null value. | | | | | | | |
| **Location** | DSPM Parameters | **S57 Encoding** | - |  | | | | |
| **FOID or VRID** | - |  |  |  | | | | |
| **Screen Capture** |  | | | | | | | |
| **Expected Test Results** | 1510: An error “SDAT (Sounding Datum subfield) is not populated” must be triggered. | | | | | | | |
| **Secondary Errors** | None | | | | | | | |
|  | | | | | | | | |
| **Dataset Name** | AA400003 | **S‐58 Check** | 1513 | | | **Type** | | C |
| **S-58 Description** | If the value of the HUNI subfield of the DSPM field is Not equal to 1 (metres). | | | | | | | |
| **Message** | HUNI subfield is not equal to 1 (metres). | | | | | | | |
| **Solution** | Set value of HUNI to 1 (metres). | | **Conformity** | 2.1.4 | | | | |
| **Test Case No. 1** | Height measurement units (HUNITS) has been assigned as “feet”. | | | | | | | |
| **Location** | DSPM Parameters | **S57 Encoding** | - |  | | | | |
| **FOID or VRID** | - |  |  |  | | | | |
| **Screen Capture** |  | | | | | | | |
| **Expected Test Results** | 1513: An error “Units of Height measurement subfield is not set to (1) [metres]” must be triggered. | | | | | | | |
| **Secondary Errors** | None | | | | | | | |

1. **Test Dataset: AA400004**

**S‐58 Recommended ENC Validation Checks covered in this section:**

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| --- | --- |
| **S‐58 Check** | **Description** |
| 1515a | For each feature object where a value of DATEND, DATSTA, PEREND or PERSTA does not conform to the formatting defined in ISO 8601:1988. |
| 1554a | For each Group 1 feature object where SCAMIN is Present. |
| 1554b | For each meta object where SCAMIN is Present. |
| 1617 | For each DAMCON feature object which is not COVERED\_BY a LNDARE feature object of geometric primitive area. |
| 1651 | For each SWPARE feature object which OVERLAPS, CONTAINS OR is WITHIN a LNDARE, UNSARE, FLODOC, HULKES or PONTON feature object of geometric primitive area. |
| 1681 | For each RECTRC feature object of geometric primitive line where ORIENT is not Null AND TRAFFIC is Equal to 1 (inbound) OR 2 (outbound) OR 3 (one-way) AND the bearing of the line is more than 5 degrees Greater than OR Less than the value of ORIENT. |
| 1683 | For each C\_AGGR collection object with a single instance of both NAVLNE and RECTRC AND the ORIENT value of the RECTRC feature object is more than 3 degrees Greater than OR Less than the value (or reciprocal value) of the ORIENT value of the NAVLNE feature object. |

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| **Dataset Name** | AA400004 | **S‐58 Check** | 1515a | | | **Type** | | C |
| **S-58 Description** | For each feature object where a value of DATEND, DATSTA, PEREND or PERSTA does not conform to the formatting defined in ISO 8601:1988. | | | | | | | |
| **Message** | Date attribute not formatted according to ISO 8601:1988. | | | | | | | |
| **Solution** | Amend formatting to conform to ISO 8601:1988. | | **Conformity** | 2.1.5 | | | | |
| **Test Case No. 1** | 4 BCNSPP (P) objects with Date attributes not formatted according to ISO 8601:1988. | | | | | | | |
| **Location** | 32°20'17.41"S 61°09'32.38"E | **S57 Encoding** | BCNSPP (P) | PEREND = JULY0918  PERSTA = 31122018  DATSTA = 00122016  DATEND = 12312017 | | | | |
| **FOID or VRID** | AA 2260313639 00020  AA 3273789499 00035  AA 3473191198 00036  AA 3865514003 00032 |  |  |  | | | | |
| **Screen Capture** |  | | | | | | | |
| **Expected Test Results** | 1515a: 4 errors “Date attribute not formatted according to ISO 8601:1988” must be triggered. | | | | | | | |
| **Secondary Errors** | None | | | | | | | |
|  | | | | | | | | |
| **Dataset Name** | AA400004 | **S‐58 Check** | 1554a | | | **Type** | | C |
| **S-58 Description** | For each Group 1 feature object where SCAMIN is Present. | | | | | | | |
| **Message** | SCAMIN present for a Group 1 object. | | | | | | | |
| **Solution** | Remove SCAMIN. | | **Conformity** | 2.2.7 | | | | |
| **Test Case No. 1** | SCAMIN attribution assigned to Group 1 objects. | | | | | | | |
| **Location** | 32°21'41.13"S 61°09'09.78"E | **S57 Encoding** | FLODOC (A)  PONTON (A)  LNDARE (A)  UNSARE (A)  HULKES (A)  DEPARE (A)  DRGARE (A) | SCAMIN=45000 | | | | |
| **FOID or VRID** | AA 2428659641 00016  AA 4057664043 00017  AA 1648245827 00018  AA 1630439092 00022  AA 0439459982 00026  AA 0570087124 00033  AA 2450145019 00034 |  |  |  | | | | |
| **Screen Capture** |  | | | | | | | |
| **Expected Test Results** | 1554a: 7 errors “SCAMIN present for a Group 1 object” must be triggered. | | | | | | | |
| **Secondary Errors** | None | | | | | | | |
|  | | | | | | | | |
| **Dataset Name** | AA400004 | **S‐58 Check** | 1554b | | | **Type** | | C |
| **S-58 Description** | For each meta object where SCAMIN is Present. | | | | | | | |
| **Message** | SCAMIN present for a meta object. | | | | | | | |
| **Solution** | Remove SCAMIN. | | **Conformity** | 2.2.7 | | | | |
| **Test Case No. 1** | Assigned SCAMIN for meta objects. | | | | | | | |
| **Location** | 32°23'30.35"S 61°07'08.90"E | **S57 Encoding** | M\_COVR  M\_NSYS  M\_QUAL | SCAMIN = 45000 | | | | |
| **FOID or VRID** | AA 3953435764 00003  AA 0970257508 00002  AA 2036148987 00001 |  |  |  | | | | |
| **Screen Capture** |  | | | | | | | |
| **Expected Test Results** | 1554b: 3 errors “SCAMIN present for a meta object.” must be triggered. | | | | | | | |
| **Secondary Errors** | 547: 2 additional errors “Attribute not permitted on object class” must be triggered. | | | | | | | |
|  | | | | | | | | |
| **Dataset Name** | AA400004 | **S‐58 Check** | 1617 | | | **Type** | | C |
| **S-58 Description** | For each DAMCON feature object which is not COVERED\_BY a LNDARE feature object of geometric primitive area. | | | | | | | |
| **Message** | DAMCON not covered by LNDARE. | | | | | | | |
| **Solution** | Ensure DAMCON object is covered by a LNDARE object. | | **Conformity** | 4.8.5 | | | | |
| **Test Case No. 1** | DAMCON (A) object created which is not covered by LNDARE (A). | | | | | | | |
| **Location** | 32°22'52.46"S 61°09'21.44"E | **S57 Encoding** | DAMCON (A) |  | | | | |
| **FOID or VRID** | AA 1182158558 00912 |  |  |  | | | | |
| **Screen Capture** |  | | | | | | | |
| **Expected Test Results** | 1617: An error “DAMCON object is not covered by LNDARE” must be triggered. | | | | | | | |
| **Secondary Errors** | None | | | | | | | |
|  | | | | | | | | |
| **Dataset Name** | AA400004 | **S‐58 Check** | 1651 | | | **Type** | | C |
| **S-58 Description** | For each SWPARE feature object which OVERLAPS, CONTAINS OR is WITHIN a LNDARE, UNSARE, FLODOC, HULKES or PONTON feature object of geometric primitive area. | | | | | | | |
| **Message** | SWPARE object not covered by DRGARE or DEPARE objects. | | | | | | | |
| **Solution** | Amend limits of SWPARE object or edit Group 1 objects. | | **Conformity** | 5.6 | | | | |
| **Test Case No. 1** | SWPARE overlap created on LNDARE, UNSARE, FLODOC, HULKES and PONTON features. | | | | | | | |
| **Location** | 32°21'34.56"S 61°09'12.20"E | **S57 Encoding** | SWPARE (A) | DRVAL1=200 | | | | |
| **FOID or VRID** | AA 2036097680 00015 |  |  |  | | | | |
| **Screen Capture** |  | | | | | | | |
| **Expected Test Results** | 1651: An error “SWPARE object not covered by DRGARE or DEPARE objects” must be triggered. | | | | | | | |
| **Secondary Errors** | None | | | | | | | |
|  | | | | | | | | |
| **Dataset Name** | AA400004 | **S‐58 Check** | 1681 | | | **Type** | | C |
| **S-58 Description** | For each RECTRC feature object of geometric primitive line where ORIENT is not Null AND TRAFFIC is Equal to 1 (inbound) OR 2 (outbound) OR 3 (one-way) AND the bearing of the line is more than 5 degrees Greater than OR Less than the value of ORIENT. | | | | | | | |
| **Message** | RECTRC where ORIENT does not correspond to the bearing of the line. | | | | | | | |
| **Solution** | Populate an appropriate value of ORIENT consistent with the geometry of the RECTRC object. | | **Conformity** | 10.1.1 | | | | |
| **Test Case No. 1** | RECTRC created with inappropriate ORIENT. | | | | | | | |
| **Location** | 32°24’00.86”S 61°09’12.85”E | **S57 Encoding** | RECTRC (L) | ORIENT=100 | | | | |
| **FOID or VRID** | AA 0088888762 00025  AA 0336445492 00027  AA 1223042484 00024 |  |  |  | | | | |
| **Screen Capture** |  | | | | | | | |
| **Expected Test Results** | 1681: An error “RECTRC where ORIENT does not correspond to the bearing of the line” must be triggered. | | | | | | | |
| **Secondary Errors** | None | | | | | | | |
|  | | | | | | | | |
| **Dataset Name** | AA400004 | **S‐58 Check** | 1683 | | **Type** | | C | |
| **S-58 Description** | For each C\_AGGR collection object with a single instance of both NAVLNE and RECTRC AND the ORIENT value of the RECTRC feature object is more than 3 degrees Greater than OR Less than the value (or reciprocal value) of the ORIENT value of the NAVLNE feature object. | | | | | | | |
| **Message** | RECTRC and NAVLNE objects as part of a C\_AGGR do not have consistent values of ORIENT. | | | | | | | |
| **Solution** | Amend values of ORIENT to agree for RECTRC or NAVLNE. | | **Conformity** | 10.1.2 | | | | |
| **Test Case No. 1** | NAVLNE and RECTRC objects created with different ORIENT values. | | | | | | | |
| **Location** | 32°24’33.79”S 61°09’39.37”E | **S57 Encoding** | NAVLNE (L)    RECTRC (L) | CATNAV=1  ORIENT=80  CATTRK=1  ORIENT=84  TRAFIC=1 | | | | |
| **FOID or VRID** | AA 0500129662 00029  AA 2970194112 00028 |  |  |  | | | | |
| **Screen Capture** |  | | | | | | | |
| **Expected Test Results** | 1683: An error “RECTRC and NAVLNE as part of a C\_AGGR do not have consistent values of ORIENT.” must be triggered. | | | | | | | |
| **Secondary Errors** | 1681: An additional error “RECTRC where ORIENT does not correspond to the bearing of the line” must be triggered. | | | | | | | |

1. **Test Dataset: AA400005**

**S‐58 Recommended ENC Validation Checks covered in this section:**

|  |  |
| --- | --- |
| **S‐58 Check** | **Description** |
| 1694 | For each DWRTCL feature object where ORIENT is notNull AND TRAFIC is Equal to 1 (inbound) OR 2 (outbound) OR 3 (one-way) AND the bearing of the line is more than 5 degrees Greater than OR Less than the value of ORIENT. |
| 1696 | For each RCRTCL feature object where TRAFIC is Equal to 1 (inbound) OR 2 (outbound) OR 3 (one-way) AND the bearing of the line is more than 5 degrees Greater than OR Less than the value of ORIENT. |
| 1726 | If the M\_COVR meta object where CATCOV is Equal to 1 AND is Not equal to the combined coverage of M\_NSYS meta objects  where MARSYS is notNull. |
| 1727 | For each M\_NSYS meta object where MARSYS is notNull which OVERLAPS or is WITHIN another meta M\_NSYS object where  MARSYS is notNull. |
| 1775 | For each navigational aid equipment feature object which is COVERED\_BY a DEPARE, DRGARE or UNSARE AND does not  have a navigational aid structure feature object as a master AND the geometry of which is not COVERED\_BY a CBLOHD, COALNE, CONVYR, DAMCON, (with CATDAM Equal to 3 (flood barrage)), LNDARE, PIPOHD or SLCONS feature object. |
| 1789A | For each DWRTCL, RECTRC and RCRTCL feature object of geometric primitive line where ORIENT is notNull AND  TRAFIC is Equal to 4 (two-way) AND the bearing of the line is more than 5 degrees Greater than OR Less than the value (or  reciprocal value) of ORIENT. |
| 1789B | For each NAVLNE feature object where ORIENT is notNull AND the bearing of the line is more than 5 degrees Greater than OR Less than the value (or reciprocal value) of ORIENT. |
| 1795a | For each feature object which is a slave in a Master to Slave relationship AND where DATSTA or PERSTA attributes are notNull AND the values of DATSTA OR PERSTA are Less than the values of DATSTA OR PERSTA encoded on the master object. |
| 1795b | For each feature object which is a slave in a Master to Slave relationship AND where PEREND OR DATEND attributes are notNull AND the values of PEREND OR DATEND are Greater than the values of PEREND OR DATEND encoded on the master object. |

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| **Dataset Name** | AA400005 | **S‐58 Check** | 1694 | | | **Type** | | C |
| **S-58 Description** | For each DWRTCL feature object where ORIENT is not Null AND TRAFIC is Equal to 1 (inbound) OR 2 (outbound) OR 3 (one-way) AND the bearing of the line is more than 5 degrees Greater than OR Less than the value of ORIENT. | | | | | | | |
| **Message** | One way DWRTCL object where ORIENT does not correspond to the bearing of the line. | | | | | | | |
| **Solution** | Populate an appropriate value of ORIENT for the DWRTCL object consistent with the geometry of the object. | | **Conformity** | 10.2.2.2 | | | | |
| **Test Case No. 1** | DWRTCL (L) features created where ORIENT does not correspond to the bearing of the line. | | | | | | | |
| **Location** | 32°20'20.69"S 61°10'37.26"E | **S57 Encoding** | DWRTCL | CATTRK=1  ORIENT=10  TRAFIC=1 or 2 or 3 | | | | |
| **FOID or VRID** | AA 0689738323 00013  AA 3658117900 00019  AA 1052025647 00020 |  |  |  | | | | |
| **Screen Capture** |  | | | | | | | |
| **Expected Test Results** | 1694: 3 errors “One way DWRTCL object where ORIENT does not correspond to the bearing of the line” must be triggered. | | | | | | | |
| **Secondary Errors** | None | | | | | | | |
|  | | | | | | | | |
| **Dataset Name** | AA400005 | **S‐58 Check** | 1696 | | | **Type** | | C |
| **S-58 Description** | For each RCRTCL feature object where TRAFIC is Equal to 1 (inbound) OR 2 (outbound) OR 3 (one-way) AND the bearing of the line is more than 5 degrees Greater than OR Less than the value of ORIENT. | | | | | | | |
| **Message** | One-way RCRTCL object where ORIENT does not correspond to the bearing of the line. | | | | | | | |
| **Solution** | Populate an appropriate value of ORIENT for the RCRTCL object consistent with the geometry of the object. | | **Conformity** | 10.2.4 | | | | |
| **Test Case No. 1** | RCRTCL (L) features created where ORIENT does not correspond to the bearing of the line. | | | | | | | |
| **Location** | 32°20'52.23"S 61°10'27.09"E | **S57 Encoding** | RCRTCL | CATTRK=1  ORIENT=5  TRAFIC=1 or 2 or 3 | | | | |
| **FOID or VRID** | AA 2031968439 00014  AA 1525292017 00021  AA 1558336787 00022 |  |  |  | | | | |
| **Screen Capture** |  | | | | | | | |
| **Expected Test Results** | 1696: 3 errors “One-way RCRTCL object where ORIENT does not correspond to the bearing of the line” must be triggered. | | | | | | | |
| **Secondary Errors** | None | | | | | | | |
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| **Dataset Name** | AA400005 | **S‐58 Check** | 1726 | | | **Type** | | C |
| **S-58 Description** | If the M\_COVR meta object where CATCOV is Equal to 1 AND is Not equal to the combined coverage of M\_NSYS meta objects where MARSYS is not Null. | | | | | | | |
| **Message** | Data coverage not completely covered by M\_NSYS objects with a value for MARSYS. | | | | | | | |
| **Solution** | Ensure complete coverage of M\_NSYS objects with MARSYS populated. | | **Conformity** | 12.2 | | | | |
| **Test Case No. 1** | M\_NSYS created with a hole. | | | | | | | |
| **Location** | 32°24'27.91"S 61°14'35.76"E | **S57 Encoding** | M\_NSYS | MARSYS=1 | | | | |
| **FOID or VRID** | AA 2805503932 00002 |  |  |  | | | | |
| **Screen Capture** |  | | | | | | | |
| **Expected Test Results** | 1726: An error “Data coverage not completely covered by M\_NSYS objects with a value for MARSYS” must be triggered. | | | | | | | |
| **Secondary Errors** | None | | | | | | | |
|  | | | | | | | | |
| **Dataset Name** | AA400005 | **S‐58 Check** | 1727 | | | **Type** | | C |
| **S-58 Description** | For each M\_NSYS meta object where MARSYS is not Null which OVERLAPS or is WITHIN another meta M\_NSYS object where MARSYS is not Null. | | | | | | | |
| **Message** | M\_NSYS objects with MARSYS values overlap. | | | | | | | |
| **Solution** | Amend limits of M\_NSYS objects to remove overlap. | | **Conformity** | 12.2 | | | | |
| **Test Case No. 1** | Two M\_NSYS (A) objects overlapping. | | | | | | | |
| **Location** | 32°24'26.63"S 61°13'39.12"E | **S57 Encoding** | M\_NSYS | MARSYS 1 | | | | |
| **FOID or VRID** | AA 0305854279 00004  AA 2805503932 00002 |  |  |  | | | | |
| **Screen Capture** |  | | | | | | | |
| **Expected Test Results** | 1727: An error “M\_NSYS objects with MARSYS values overlap” must be triggered. | | | | | | | |
| **Secondary Errors** | None | | | | | | | |
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| **Dataset Name** | AA400005 | **S‐58 Check** | 1775 | | | **Type** | | C |
| **S-58 Description** | For each navigational aid equipment feature object which is COVERED\_BY a DEPARE, DRGARE or UNSARE AND does not have a navigational aid structure feature object as a master AND the geometry of which is not COVERED\_BY a BRIDGE, CBLOHD, COALNE, CONVYR, DAMCON, (with CATDAM Equal to 3 (flood barrage)), LNDARE, PIPOHD, PONTON or SLCONS feature object. | | | | | | | |
| **Message** | Equipment object within DEPARE, DRGARE or UNSARE without an appropriate supporting structure object or underlying object. | | | | | | | |
| **Solution** | Ensure equipment object is encoded with an appropriate structure object or underlying object. | | **Conformity** | 12.1.2 and 12.8.8 | | | | |
| **Test Case No. 1** | Navigational aids are created on DEPARE, DRGARE and UNSARE without navigational aid structure. | | | | | | | |
| **Location** | 32°24'29.94"S 61°11'03.70"E | **S57 Encoding** | FOGSIG (P)  DAYMAR (P)  RADSTA (P)  RDOSTA (P)  RETRFL (P)  RTPBCN (P)  SISTAT (P)  SISTAW (P)  TOPMAR (P)  LIGHTS (P) |  | | | | |
| **FOID or VRID** | AA 2147821832 00005  AA 3537543390 00007  AA 0204961271 00015  AA 3791992542 00016  AA 1837471119 00024  AA 3825566210 00025  AA 1194000199 00026  AA 2922093353 00027  AA 2905827038 00028  AA 3380686328 00029  AA 2104668330 00030  AA 1207892399 00031  AA 3156892419 00032  AA 3846917855 00033  AA 0927573138 00034  AA 1710357157 00035  AA 3825215545 00036  AA 2089980217 00037  AA 3939247823 00038  AA 2129089123 00039  AA 1507746123 00040  AA 1523924671 00041  AA 3319111457 00042  AA 0728111813 00043  AA 2396683356 00044  AA 0910046820 00045  AA 1292063873 00046  AA 3056261513 00051  AA 0293671763 00052  AA 4140909654 00055 |  |  |  | | | | |
| **Screen Capture** |  | | | | | | | |
| **Expected Test Results** | 1775: 30 errors “Equipment object within DEPARE, DRGARE or UNSARE without an appropriate supporting structure object or underlying object” must be triggered. | | | | | | | |
| **Secondary Errors** | 54b: 3 additional errors “DAYMAR not covered by a suitable supporting object” must be triggered.  1722: 27 additional errors “Navigational aid without structure equipment” must be triggered. | | | | | | | |
|  | | | | | | | | |
| **Dataset Name** | AA400005 | **S‐58 Check** | 1789a | | | **Type** | | C |
| **S-58 Description** | For each DWRTCL, RECTRC and RCRTCL feature object of geometric primitive line where ORIENT is not Null AND TRAFIC is Equal to 4 (two-way) AND the bearing of the line is more than 5 degrees Greater than OR Less than the value (or reciprocal value) of ORIENT. | | | | | | | |
| **Message** | DWRTCL, RECTRC or RCRTCL where the orientation of the geometry is not consistent with the value of ORIENT. | | | | | | | |
| **Solution** | Populate an appropriate value of ORIENT consistent with the geometry of the DWRTCL, RECTRC or RCRTCL object. | | **Conformity** | Logical consistency | | | | |
| **Test Case No. 1** | DWRTCL, RECTRC and RCRTCL line features created where the orientation of the geometry is not consistent with the value of ORIENT. | | | | | | | |
| **Location** | 32°23'31.68"S 61°11'32.84"E | **S57 Encoding** | DWRTCL (L)  RECTRC (L)  RCRTCL(L) | CATTRK=2  ORIENT = 10  TRAFIC = 4 | | | | |
| **FOID or VRID** | AA 0041857329 00047  AA 0820032718 00048  AA 0529310847 00049 |  |  |  | | | | |
| **Screen Capture** |  | | | | | | | |
| **Expected Test Results** | 1789a: 3 errors “DWRTCL, RECTRC or RCRTCL where the orientation of the geometry is not consistent with the value of ORIENT” must be triggered. | | | | | | | |
| **Secondary Errors** | None | | | | | | | |
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| **Dataset Name** | AA400005 | **S‐58 Check** | 1789b | | **Type** | | C | |
| **S-58 Description** | For each NAVLNE feature object where ORIENT is notNull AND the bearing of the line is more than 5 degrees Greater than OR Less than the value (or reciprocal value) of ORIENT. | | | | | | | |
| **Message** | NAVLNE where the orientation of the geometry is not consistent with the value of ORIENT. | | | | | | | |
| **Solution** | Populate an appropriate value of ORIENT consistent with the geometry of the NAVLNE object. | | **Conformity** | Logical consistency | | | | |
| **Test Case No. 1** | NAVLNE line feature created where the orientation of the geometry is not consistent with the value of ORIENT. | | | | | | | |
| **Location** | 32°22'47.74"S 61°11'25.69"E | **S57 Encoding** | NAVLNE (L) | ORIENT = 10 | | | | |
| **FOID or VRID** | AA 0187722703 00050 |  |  |  | | | | |
| **Screen Capture** |  | | | | | | | |
| **Expected Test Results** | 1789b: An error “NAVLNE where the orientation of the geometry is not consistent with the value of ORIENT” must be triggered. | | | | | | | |
| **Secondary Errors** | None | | | | | | | |
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| **Dataset Name** | AA400005 | **S‐58 Check** | 1795a | | | **Type** | | C |
| **S-58 Description** | For each feature object which is a slave in a Master to Slave relationship AND where DATSTA or PERSTA attributes are notNull AND the values of DATSTA OR PERSTA are Less than the values of DATSTA OR PERSTA encoded on the master object. | | | | | | | |
| **Message** | Temporal attributes on a slave object extend beyond those on the master object. | | | | | | | |
| **Solution** | Populate appropriate temporal attributes on master/slave objects. | | **Conformity** | 2.1.5 | | | | |
| **Test Case No. 1** | DATSTA of slave (LIGHTS) object precedes DATSTA of master (BCNSPP) object. | | | | | | | |
| **Location** | 32°21'12.97"S 61°11'44.15"E | **S57 Encoding** | LIGHTS (P)  BCNSPP (P) | DATSTA= 20120622  STATUS=5  DATSTA= 20120623  STATUS=5 | | | | |
| **FOID or VRID** | AA 1571627619 00054  AA 2514045550 00056 |  |  |  | | | | |
| **Screen Capture** |  | | | | | | | |
| **Expected Test Results** | 1795a: 2 errors “Temporal attributes on a slave object extend beyond those on the master object” must be triggered. | | | | | | | |
| **Secondary Errors** | 1516: An error “periodic object without persta/perend for BCNSPP and LIGHT” must be triggered. | | | | | | | |
| **Test Case No. 2** | PERSTA of slave (LIGHTS) object precedes PERSTA of master (BCNSPP) object. | | | | | | | |
| **Location** | 32°21'13.01"S 61°11'56.75"E | **S57 Encoding** | LIGHTS (P)  BCNSPP (P) | PERSTA= 20120203  STATUS=5  PERSTA= 20120204  STATUS=5 | | | | |
| **FOID or VRID** | AA 3310470363 00053  AA 3177571187 00057 |  |  |  | | | | |
| **Screen Capture** |  | | | | | | | |
| **Expected Test Results** | 1795a: 2 errors “Temporal attributes on a slave object extend beyond those on the master object” must be triggered. | | | | | | | |
| **Secondary Errors** | None | | | | | | | |
|  | | | | | | | | |
| **Dataset Name** | AA400005 | **S‐58 Check** | 1795b | | | **Type** | | C |
| **S-58 Description** | For each feature object which is a slave in a Master to Slave relationship AND where PEREND OR DATEND attributes are notNull AND the values of PEREND OR DATEND are Greater than the values of PEREND OR DATEND encoded on the master object. | | | | | | | |
| **Message** | Temporal attributes on a slave object extend beyond those on the master object. | | | | | | | |
| **Solution** | Populate appropriate temporal attributes on master/slave objects. | | **Conformity** | 2.1.5 | | | | |
| **Test Case No. 1** | DATEND of slave (LIGHTS) object is after DATEND of master (BCNSPP) object. | | | | | | | |
| **Location** | 32°22'00.18"S 61°11'40.26"E | **S57 Encoding** | LIGHTS (P)  BCNSPP (P) | DATEND= 20120630  STATUS=5  DATEND= 20120629  STATUS=5 | | | | |
| **FOID or VRID** | AA 2893684926 00058  AA 0057454746 00059 |  |  |  | | | | |
| **Screen Capture** |  | | | | | | | |
| **Expected Test Results** | 1795b: 2 errors “Temporal attributes on a slave object extend beyond those on the master object” must be triggered. | | | | | | | |
| **Secondary Errors** | 1516: An error “periodic object without persta/perend for BCNSPP and LIGHT” must be triggered. | | | | | | | |
| **Test Case No. 2** | PEREND of slave (LIGHTS) object is after PEREND of master (BCNSPP) object. | | | | | | | |
| **Location** | 32°22'00.18"S 61°12'03.19"E | **S57 Encoding** | LIGHTS (P)  BCNSPP (P) | PEREND= 20120212  STATUS=5  PEREND= 20120210  STATUS=5 | | | | |
| **FOID or VRID** | AA 1845305972 00060  AA 0209336217 00061 |  |  |  | | | | |
| **Screen Capture** |  | | | | | | | |
| **Expected Test Results** | 1795b: 2 errors “Temporal attributes on a slave object extend beyond those on the master object” must be triggered. | | | | | | | |
| **Secondary Errors** | None | | | | | | | |

1. **Test Dataset: AA400006**

**S‐58 Recommended ENC Validation Checks covered in this section:**

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| **S‐58 Check** | **Description** |
| 2 | For each edge which does not have a beginning or end node. |
| 12 | For each feature object (excluding C\_AGGR and C\_ASSO collection objects) which does not reference a spatial record. |
| 523 | If the HDAT subfield of the DSPM field is Not equal to 2 (WGS 84). |

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| **Dataset Name** | AA400006 | **S‐58 Check** | 2 | | **Type** | C |
| **S-58 Description** | For each edge which does not have a beginning or end node. | | | | | |
| **Message** | VE edge missing beginning or end node. | | | | | |
| **Solution** | Add nodes as required. | | **Conformity** | Part 2 (2.2.1.2) | | |
| **Test Case No. 1** | Captured SLCONS (L) features have been created which does not have a beginning node. | | | | | |
| **Location** | 32°28'37.87"S 60°54'00.63"E | **S57 Encoding** | SLCONS | CATSLC=1  WATLEV=2 | | |
| **FOID or VRID** | AA 1519908281 00001 |  |  |  | | |
| **Screen Capture** |  | | | | | |
| **Expected Test Results** | An error “Edge does not point to two nodes” must be triggered. | | | | | |
| **Secondary Errors** | 12: An additional error “object has no geometry” must be triggered.  21: An additional error “orphan which is the edge is dose not point to end node” must be triggered.  84: An additional error “isolated node marked as connected” must be triggered.  105: An additional error “creating line unknown edges” must be triggered. | | | | | |
| **Test Case No. 2** | Captured SLCONS (L) features have been created which does not have an end node. | | | | | |
| **Location** | 32°28'54.89"S 60°53'41.11"E | **S57 Encoding** | SLCONS (L) | CATSLC=4  WATLEV=2 | | |
| **FOID or VRID** | AA 1519908554 00001 |  |  |  | | |
| **Screen Capture** |  | | | | | |
| **Expected Test Results** | An error “Edge does not point to two nodes” must be triggered. | | | | | |
| **Secondary Errors** | 12: An additional error “object has no geometry” must be triggered.  105: An additional error “creating line unknown edges” must be triggered. | | | | | |
|  | | | | | | |
| **Dataset Name** | AA400006 | **S‐58 Check** | 12 | | **Type** | C |
| **S-58 Description** | For each feature object (excluding C\_AGGR and C\_ASSO collection objects) which does not reference a spatial record. | | | | | |
| **Message** | Feature object without geometry. | | | | | |
| **Solution** | Remove the feature object or reference the feature object to a spatial record of allowable geometric primitive. | | **Conformity** | Part 3 (4.7) | | |
| **Test Case No. 1** | ADMARE feature has been created without geometry. | | | | | |
| **Location** | - | **S57 Encoding** | ADMARE (A) | JRSDTN=3 | | |
| **FOID or VRID** | AA 1523707147 00003 |  |  |  | | |
| **Screen Capture** | - | | | | | |
| **Expected Test Results** | 12: An error “object has no geometry Administration area” must be triggered. | | | | | |
| **Secondary Errors** | 35: An error “bad value of the feature record version” must be triggered.  28: An error “wrong number of records in DSSI” must be triggered. | | | | | |
|  | | | | | | |
| **Dataset Name** | AA400006 | **S-58 Check** | 523 | | **Type** | C |
| **S-58 Description** | If the HDAT subfield of the DSPM field is Not equal to 2 (WGS 84). | | | | | |
| **Message** | HDAT does not equal 2 (WGS 84). | | | | | |
| **Solution** | Set the HDAT subfield to 2 (WGS 84). | | **Conformity** | 4.1 | | |
| **Test Case No. 1** | HDAT subfield changed to WGS72. | | | | | |
| **Location** | - | **S57 Encoding** | - | - | | |
| **FOID or VRID** | - |  |  |  | | |
| **Screen Capture** |  | | | | | |
| **Expected Test Results** | 523: An error “HDAT does not equal 2 (WGS 84)” must be triggered. | | | | | |
| **Secondary Errors** | None | | | | | |

1. **Test Dataset: AA400007**

**S‐58 Recommended ENC Validation Checks covered in this section:**

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| **S‐58 Check** | **Description** |
| 89b | For each slave object which is referenced by more than one master object. |
| 1792 | If the cell crosses the 180° meridian. |

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| **Dataset Name** | AA400007 | **S‐58 Check** | 89b | | **Type** | C |
| **S-58 Description** | For each slave object which is referenced by more than one master object. | | | | | |
| **Message** | Slave object has more than one master. | | | | | |
| **Solution** | Remove incorrect master from slave object. | | **Conformity** | Part 3 (6.3); Appendix B.1 (3.9) and  Appendix B.1,  Annex A (12.1.2) | | |
| **Test Case No. 1** | Master-Slave Relationship has been created for single slave object with two master objects. | | | | | |
| **Location** | 32°39'04.05"S 179°58'58.05"W | **S57 Encoding** | BCNSPP  LIGHTS  BCNSPP | CATSPM=27  BCNSHP= 4  COLOUR=6  LITCHR= 1  COLOUR=1  CATSPM=27  BCNSHP= 1  COLOUR=6 | | |
| **FOID or VRID** | AA 0343173794 00017  AA 2253487787 00016  AA 2597686342 00018 |  |  |  | | |
| **Screen Capture** |  | | | | | |
| **Expected Test Results** | 89: An error “Slave object has more than one master” must be triggered. | | | | | |
| **Secondary Errors** | 517: An additional error “Feature is a slave to more than one feature” must be triggered. | | | | | |
|  | | | | | | |
| **Dataset Name** | AA400007 | **S‐58 Check** | 1792 | | **Type** | C |
| **S-58 Description** | If the cell OVERLAPS the 180° meridian. | | | | | |
| **Message** | Cell OVERLAPS 180° meridian. | | | | | |
| **Solution** | Split the cell at the 180° meridian. | | **Conformity** | 2.1.8.2 | | |
| **Test Case No. 1** | Cell created at 180°E. | | | | | |
| **Location** | - | **S57 Encoding** | M\_COVR | CATCOV= 1 | | |
| **FOID or VRID** | AA 3252242406 00001 |  |  |  | | |
| **Screen Capture** |  | | | | | |
| **Expected Test Results** | 1792: An error “Cell overlaps 180° meridian” must be triggered. | | | | | |
| **Secondary Errors** | 501: An additional error “Cell is not rectangular” must be triggered.  78: An additional error “Boundary of an area object crosses itself” must be triggered.  77: An additional error “DEPCNT objects cross” must be triggered.  1768: An additional error “SOUNDG object with depth less than or equal to the underlying value of DRVAL1”must be triggered.  519b: An additional error “Skin of the earth (TG1) objects overlap”must be triggered.  549: An additional error “DEPARE or DRGARE objects not covered by an M\_QUAL object” must be triggered  548: An additional error “Cell not entirely covered by M\_COVR objects” must be triggered.  16: An additional error “Area outer boundary not encoded clockwise” must be triggered.  17: An additional error “Area inner boundary not encoded counter‐clockwise” must be triggered.  80a: An additional error “Internal boundary WITHIN an internal boundary” must be triggered.  19: An additional error “Edge coincides with the edge of data and USAG does not equal 3  {Exterior boundary truncated by the data limit]” must be triggered. | | | | | |

1. **Test Dataset: AA400008**

**S‐58 Recommended ENC Validation Checks covered in this section:**

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| **S‐58 Check** | **Description** |
| 80a | For each feature object of geometric primitive area where an interior boundary is WITHIN an interior boundary. |
| 80b | For each feature object of geometric primitive area where an interior boundary is not WITHIN an exterior boundary. |
| 80c | For each feature object of geometric primitive area where an exterior boundary is WITHIN an interior boundary. |
| 505 | If either M\_COVR, M\_NSYS or M\_QUAL meta objects do not exist within the data set. |
| 566 | For each NEWOBJ feature object with the attributes CLSDEF, CLSNAM and SYMINS not populated with exactly one of the following combinations. |
| 1006 | If an update and its base cell do not have the same lexical level. |
| 1012 | If a catalogue file does not exist. |

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| **Dataset Name** | AA400008 | **S‐58 Check** | 80a | | **Type** | C |
| **S-58 Description** | For each feature object of geometric primitive area where an interior boundary is WITHIN an interior boundary. | | | | | |
| **Message** | Interior boundary within an interior boundary. | | | | | |
| **Solution** | Amend boundaries so that interior boundary is not within another interior boundary. | | **Conformity** | Topology | | |
| **Test Case No. 1** | ACHBRT (A) feature created according to the error description. | | | | | |
| **Location** | 32°27'51.20"S 61°03'58.85"E | **S57 Encoding** | ACHARE(A) | - | | |
| **FOID or VRID** | AA 1519796577 00001 |  |  |  | | |
| **Screen Capture** |  | | | | | |
| **Expected Test Results** | 80a: An error “Interior boundary within an interior boundary” must be triggered. | | | | | |
| **Secondary Errors** | None | | | | | |
|  | | | | | | |
| **Dataset Name** | AA400008 | **S‐58 Check** | 80b | | **Type** | C |
| **S-58 Description** | For each feature object of geometric primitive area where an interior boundary is not WITHIN an exterior boundary. | | | | | |
| **Message** | Interior boundary outside of an exterior boundary. | | | | | |
| **Solution** | Amend boundaries so that interior boundary is within exterior boundary. | | **Conformity** | Topology | | |
| **Test Case No. 1** | ACHBRT (A) feature created with an interior boundary outside of an exterior boundary. | | | | | |
| **Location** | 32°28'43.05"S 61°02'12.91"E | **S57 Encoding** | ACHBRT(A) |  | | |
| **FOID or VRID** | AA 0613244470 00065 |  |  |  | | |
| **Screen Capture** |  | | | | | |
| **Expected Test Results** | 80b: An error “Interior boundary outside of an exterior boundary” must be triggered. | | | | | |
| **Secondary Errors** | None | | | | | |
|  | | | | | | |
| **Dataset Name** | AA400008 | **S‐58 Check** | 80c | | **Type** | C |
| **S-58 Description** | For each feature object of geometric primitive area where an exterior boundary is WITHIN an interior boundary. | | | | | |
| **Message** | Exterior boundary within an interior boundary. | | | | | |
| **Solution** | Amend boundaries so that exterior boundary is not within the interior boundary. | | **Conformity** | Topology | | |
| **Test Case No. 1** | RESARE (A) feature created with an exterior boundary within an interior boundary. | | | | | |
| **Location** | 32°27'44.78"S 61°01'27.39"E | **S57 Encoding** | RESARE (A) | CATREA= Military area | | |
| **FOID or VRID** | AA 2784931517 00063 |  |  |  | | |
| **Screen Capture** |  | | | | | |
| **Expected Test Results** | 80c: An error “Exterior boundary within an interior boundary” must be triggered. | | | | | |
| **Secondary Errors** | None | | | | | |
|  | | | | | | |
| **Dataset Name** | AA400008 | **S‐58 Check** | 505 | | **Type** | C |
| **S-58 Description** | If either M\_COVR, M\_NSYS or M\_QUAL meta objects do not exist within the data set. | | | | | |
| **Message** | Mandatory feature objects are missing. | | | | | |
| **Solution** | Include mandatory feature objects M\_COVR, M\_NSYS  and M\_QUAL. | | **Conformity** | 3.4 | | |
| **Test Case No. 1** | Mandatory features M\_COVR, M\_NSYS and M\_QUAL have been deleted. | | | | | |
| **Location** | - | **S57 Encoding** | - |  | | |
| **FOID or VRID** | - |  |  |  | | |
| **Screen Capture** | - | | | | | |
| **Expected Test Results** | 505: An error “Mandatory feature objects are missing.” must be triggered. | | | | | |
| **Secondary Errors** | None | | | | | |
|  | | | | | | |
| **Dataset Name** | AA400008 | **S‐58 Check** | 566 | | **Type** | C |
| **S-58 Description** | For each NEWOBJ feature object with the attributes CLSDEF, CLSNAM and SYMINS not populated with exactly one of the following combinations:   |  |  |  | | --- | --- | --- | | **CLSDEF** | **CLSNAM** | **SYMINS** | | A Virtual object which indicates navigable water lies northwards | Virtual AtoN, North Cardinal | SY(BRTHNO01);SY(BCNCAR01); TX('V- AIS',3,2,2,'15110',2,0,CHMGD,11) | | A Virtual object which indicates navigable water lies eastwards | Virtual AtoN, East Cardinal | SY(BRTHNO01);SY(BCNCAR02); TX('V-AIS',3,2,2,'15110',2,0,CHMGD,11) | | A Virtual object which indicates navigable water lies southwards | Virtual AtoN, South Cardinal | SY(BRTHNO01);SY(BCNCAR03); TX('V-AIS',3,2,2,'15110',2,0,CHMGD,11) | | A Virtual object which indicates navigable water lies westwards | Virtual AtoN, West Cardinal | SY(BRTHNO01);SY(BCNCAR04); TX('V-AIS',3,2,2,'15110',2,0,CHMGD,11) | | A Virtual object marking the port side of a channel | Virtual AtoN, Port Lateral | SY(BRTHNO01);SY(BOYLAT24);TX('V-AIS',3,2,2,'15110',2,0,CHMGD,11) | | A Virtual object marking the starboard side of a channel | Virtual AtoN, Starboard Lateral | SY(BRTHNO01);SY(BOYLAT13); TX('V-AIS',3,2,2,'15110',2,0,CHMGD,11) | | A Virtual object marking the port side of a channel | Virtual AtoN, Port Lateral | SY(BRTHNO01);SY(BOYLAT23); TX('V-AIS',3,2,2,'15110',2,0,CHMGD,11) | | A Virtual object marking the starboard side of a channel | Virtual AtoN, Starboard Lateral | SY(BRTHNO01);SY(BOYLAT14); TX('V-AIS',3,2,2,'15110',2,0,CHMGD,11) | | A Virtual object marking an isolated danger | Virtual AtoN, Isolated Danger | SY(BRTHNO01);SY(BCNISD21); TX('V-AIS',3,2,2,'15110',2,0,CHMGD,11) | | A Virtual object marking safe water | Virtual AtoN, Safe Water | SY(BRTHNO01);SY(BOYSAW12); TX('V-AIS',3,2,2,'15110',2,0,CHMGD,11) | | A Virtual object used to mark an area or feature referred to in nautical documents | Virtual AtoN, Special Purpose | SY(BRTHNO01);SY(BOYSPP11); TX('V-AIS',3,2,2,'15110',2,0,CHMGD,11) | | A Virtual object marking a wreck | Virtual AtoN, Wreck Marking | SY(BRTHNO01);SY(BOYSPP11); TX('V-AIS',3,2,2,'15110',2,0,CHMGD,11) | | | | | | |
| **Message** | Invalid use of NEWOBJ. | | | | | |
| **Solution** | Amend to reflect encoding guidance. | | **Conformity** | Appendix B1,  Annex A  (12.14.1.1) | | |
| **Test Case No. 1** | New object features created with incorrect CLSDEF. | | | | | |
| **Location** | 32°25'24.19"S 61°00'35.07"E | **S57 Encoding** | NEWOBJ (P) |  | | |
| **FOID or VRID** | AA 1519786291 00001  AA 1519786295 00001  AA 1519786297 00001  AA 1519786297 00002  AA 1519786299 00001  AA 1519786299 00002  AA 1519786300 00001  AA 1519786302 00001  AA 1519786303 00001  AA 1519786304 00001  AA 1519786305 00001  AA 1519786306 00001 |  |  |  | | |
| **Screen Capture** |  | | | | | |
| **Expected Test Results** | 566: 36 errors “Check for each NEWOBJ feature object with the attributes CLSDEF, CLSNAM and SYMINS not populated with exactly one of the following combinations” must be triggered. | | | | | |
| **Secondary Errors** | 562: 36 additional errors “INFORM must commence with the value 'New object'" must be triggered | | | | | |
| **Test Case No. 2** | New object features created with incorrect CLSNAM. | | | | | |
| **Location** | 32°26'38.61"S 61°03'23.12"E | **S57 Encoding** | - |  | | |
| **FOID or VRID** | AA 1519791744 00001  AA 1519791745 00001  AA 1519791746 00001  AA 1519791747 00001  AA 1519791749 00001  AA 1519791749 00002  AA 1519791750 00001  AA 1519791751 00001  AA 1519791752 00001  AA 1519791754 00001  AA 1519791774 00001  AA 1519791776 00001 |  |  |  | | |
| **Screen Capture** |  | | | | | |
| **Expected Test Results** | 566: 36 errors ”Check for each NEWOBJ feature object with the attributes CLSDEF, CLSNAM and SYMINS not populated with exactly one of the following combinations” must be triggered. | | | | | |
| **Secondary Errors** | 562: 36 additional errors “INFORM must commence with the value 'New object'" must be triggered | | | | | |
| **Test Case No. 3** | New object features created with incorrect SYMINS. | | | | | |
| **Location** | 32°27'01.15"S 61°01'01.60"E | **S57 Encoding** | - |  | | |
| **FOID or VRID** | AA 1519717053 00001  AA 1519717055 00001  AA 1519717056 00001  AA 1519717057 00001  AA 1519717062 00001  AA 1519717063 00001  AA 1519717064 00001  AA 1519717065 00001  AA 1519717067 00001  AA 1519717068 00001  AA 1519717069 00001  AA 1519717070 00001 |  |  |  | | |
| **Screen Capture** |  | | | | | |
| **Expected Test Results** | 566: 36 errors ”Check for each NEWOBJ feature object with the attributes CLSDEF, CLSNAM and SYMINS not populated with exactly one of the following combinations” must be triggered. | | | | | |
| **Secondary Errors** | 562: 36 additional errors “INFORM must commence with the value 'New object'" must be triggered | | | | | |
|  | | | | | | |
| **Dataset Name** | AA400008 | **S‐58 Check** | 1006 | | **Type** | C |
| **S-58 Description** | If an update and its base cell do not have the same lexical level. | | | | | |
| **Message** | Update and base cell do not have the same lexical level. | | | | | |
| **Solution** | Amend the lexical level of the update. | | **Conformity** | Part 3 (8.4.2.2a) | | |
| **Test Case No. 1** | Lexical level value has been changed for update file. | | | | | |
| **Location** | - | **S57 Encoding** | - |  | | |
| **FOID or VRID** | - |  |  |  | | |
| **Screen Capture** |  | | | | | |
| **Expected Test Results** | 1006: An error “Lexical Level in update differs from that in the cell” must be triggered. | | | | | |
| **Secondary Errors** | None | | | | | |
|  | | | | | | |
| **Dataset Name** | AA400008 | **S‐58 Check** | 1012 | | **Type** | C |
| **S-58 Description** | If a catalogue file does not exist. | | | | | |
| **Message** | No catalogue file exists. | | | | | |
| **Solution** | Create a catalogue file. | | **Conformity** | Appendix B.1 (5.4.1) | | |
| **Test Case No. 1** | Catalogue file has been deleted. | | | | | |
| **Location** | - | **S57 Encoding** | - |  | | |
| **FOID or VRID** | - |  |  |  | | |
| **Screen Capture** | - | | | | | |
| **Expected Test Results** | 1012: An error “No catalogue file detected, cannot check CRC” must be triggered. | | | | | |
| **Secondary Errors** | None | | | | | |

1. **Test Dataset: AA400009**

**S‐58 Recommended ENC Validation Checks covered in this section:**

|  |  |
| --- | --- |
| **S‐58 Check** | **Description** |
| 25a | For each edge where the beginning and end are not encoded as connected nodes. |
| 25c | For each edge where the beginning or end node is not referenced using the vector record pointer. |
| 82 | For each feature object of geometric primitive line or area which references the same edge more than once. |
| 546 | For each attribute which does not have a valid attribute label/code as defined by the Object  Catalogue and S-57 Supplements No.3. |
| 1723 | For each feature object of geometric primitive point forming the same navigational aid which does not reference the same spatial object. |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Dataset Name** | AA400009 | **S‐58 Check** | 25a | | **Type** | C |
| **S-58 Description** | For each edge where the beginning and end are not encoded as connected nodes. | | | | | |
| **Message** | Beginning or end nodes of an edge are not encoded as connected nodes. | | | | | |
| **Solution** | Amend beginning or end nodes to be connected nodes. | | **Conformity** | Part 3 (5.1.4.4) | | |
| **Test Case No. 1** | SLCONS (L) feature has been captured with beginning or end nodes of an edge are not encoded as connected nodes. | | | | | |
| **Location** | 32°27'49.00"S 61°08'01.56"E | **S57 Encoding** | SLCONS (L) | CATSLC = 4  WATLEV = 2 | | |
| **FOID or VRID** | AA 1522055409 00001 |  |  |  | | |
| **Screen Capture** |  | | | | | |
| **Expected Test Results** | 25a: An error “beginning or end nodes of an edge are not encoded as connected nodes” must be triggered. | | | | | |
| **Secondary Errors** | 28:  An additional error “DSSI field record count incorrect” must be triggered.  84b: An additional error “Connected node marked as isloated” must be triggered. | | | | | |
|  | | | | | | |
| **Dataset Name** | AA400009 | **S‐58 Check** | 25c | | **Type** | C |
| **S-58 Description** | For each edge where the beginning or end node is not referenced using the vector record pointer. | | | | | |
| **Message** | Beginning or end nodes not referenced by the vector record pointer. | | | | | |
| **Solution** | Amend edge to ensure beginning and end nodes are referenced. | | **Conformity** | Part 3 (5.1.4.4) | | |
| **Test Case No. 1** | RIVERS (L) feature has been captured with beginning or end nodes not referenced by the vector record pointer. | | | | | |
| **Location** | 32°28'18.94"S 61°07'38.64"E | **S57 Encoding** | RIVERS (L) | - | | |
| **FOID or VRID** | AA 1518249002 00001 |  |  |  | | |
| **Screen Capture** |  | | | | | |
| **Expected Test Results** | 25c: An error “Beginning or end nodes of an edge are not encoded as connected nodes” must  be triggered. | | | | | |
| **Secondary Errors** | 12: An additional error “Missing FSPT [Feature Record to Spatial Record pointer field]” must  be triggered.  28:  An additional error “DSSI field record count incorrect” must be triggered.  84a: An additional error “Isolated node marked as connected” must be triggered.  21: An additional error “Vector record pointer field (VRPT) not referenced by an edge vector  record” must be triggered. | | | | | |
|  | | | | | | |
| **Dataset Name** | AA400009 | **S‐58 Check** | 82 | | **Type** | C |
| **S-58 Description** | For each feature object of geometric primitive line or area which references the same edge more than once. | | | | | |
| **Message** | Object references the same edge more than once. | | | | | |
| **Solution** | Remove duplicate reference to the edge. | | **Conformity** | Topology | | |
| **Test Case No. 1** | BUAARE (A) feature has been captured which references the same edge more than once. | | | | | |
| **Location** | 32°28'36.09"S 61°07'59.65"E | **S57 Encoding** | BUAARE (A) | - | | |
| **FOID or VRID** | AA 1520219074 00001 |  |  |  | | |
| **Screen Capture** |  | | | | | |
| **Expected Test Results** | 82: An error “Object references the same edge more than once” must be triggered. | | | | | |
| **Secondary Errors** | 14: An additional error “contour touches other contours” must be triggered. | | | | | |
| **Test Case No. 2** | FNCLNE (L) feature has been captured which references the same edge more than once. | | | | | |
| **Location** | 32°28'57.80"S 61°07'42.42"E | **S57 Encoding** | FNCLNE (L) | CATFNC=1 | | |
| **FOID or VRID** | AA 1520845574 00001 |  |  |  | | |
| **Screen Capture** |  | | | | | |
| **Expected Test Results** | 82: An error “Object references the same edge more than once” must be triggered. | | | | | |
| **Secondary Errors** | None | | | | | |
|  | | | | | | |
| **Dataset Name** | AA400009 | **S‐58 Check** | 546 | | **Type** | C |
| **S-58 Description** | For each attribute which does not have a valid attribute label/code as defined by the Object  Catalogue and S-57 Supplements No.3. | | | | | |
| **Message** | Attribute has invalid attribute label/code. | | | | | |
| **Solution** | Amend attribute label/code. | | **Conformity** | 3.2 and  Supplement No.3  Ch.3 | | |
| **Test Case No. 1** | ACHBRT (P) feature has been captured with invalid attribute label/code. | | | | | |
| **Location** | 32°25'54.82"S 61°08'16.48"E | **S57 Encoding** | ACHBRT (P) | catach=1 | | |
| **FOID or VRID** | AA 1520226501 00001 |  |  |  | | |
| **Screen Capture** |  | | | | | |
| **Expected Test Results** | 546: An error “Attribute has invalid attribute label/code” must be triggered. | | | | | |
| **Secondary Errors** | None | | | | | |
|  | | | | | | |
| **Dataset Name** | AA400009 | **S‐58 Check** | 1723 | | **Type** | C |
| **S-58 Description** | For each feature object of geometric primitive point forming the same navigational aid which does  not reference the same spatial object. | | | | | |
| **Message** | Object forming a navigational aid does not point to the same spatial object. | | | | | |
| **Solution** | Ensure all components of the navigational aid point to the same spatial object. | | **Conformity** | 12.1.2 | | |
| **Test Case No. 1** | BCNSPP and LIGHTS (P) features have been captured by forming a navigational aid does not point to the same spatial object. | | | | | |
| **Location** | 32°28'52.87"S 61°07'51.55"E | **S57 Encoding** | BCNSPP (P)  LIGHTS (P) | [CATSPM](http://hpdsrv:210/frames/ATTRIBUTES/INFO_ATT_3.asp?)= 27  [BCNSHP](http://hpdsrv:210/frames/ATTRIBUTES/INFO_ATT_1.asp?) = 1  [COLOUR](http://hpdsrv:210/frames/ATTRIBUTES/INFO_ATT_2.asp?)= 6  LITCHR= 2  COLOUR= 6  SIGGRP=(1)  SIGPER=4 | | |
| **FOID or VRID** | AA 0000004199 00001  AA 0000004200 00001 |  |  |  | | |
| **Screen Capture** |  | | | | | |
| **Expected Test Results** | 1723: An error “Ensure all components of the navigational aid point to the same spatial object” must be triggered. | | | | | |
| **Secondary Errors** | 516a: An additional error “do not share geometry” must be triggered. | | | | | |

1. **Test Dataset: AA400010**

**S‐58 Recommended ENC Validation Checks covered in this section:**

|  |  |
| --- | --- |
| **S‐58 Check** | **Description** |
| 4 | For each RCNM where the value is not in table 2.2 of S-57 Part 3. |
| 9a | For each feature object of geometric primitive line where ORNT is Not equal to 1 (forward) OR 2 (reverse). |
| 9b | For each feature object of geometric primitive line where USAG is Not equal to Null. |
| 9c | For each feature object of geometric primitive line where MASK is Not equal to 1 (mask) AND is Not equal to 2 (show). |
| 10c | For each feature object of geometric primitive point where MASK is Not equal to 255 (masking is not relevant). |
| 35 | For each feature object where RVER is out of sequence. |
| 88a | For each feature object of geometric primitive area where ORNT is Not equal to 1 (forward) AND is Not equal to 2 (reverse). |
| 88b | For each feature object of geometric primitive area where USAG is Not equal to 1 (exterior) AND is Not equal to 2 (interior) AND is Not equal to 3 (exterior boundary truncated by the data limit). |
| 88c | For each feature object of geometric primitive area where MASK is Not equal to 1 (mask) AND is Not equal to 2 (show) AND is  Not equal to 255 (masking is not relevant). |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Dataset Name** | AA400010 | **S‐58 Check** | 4 | | **Type** | C |
| **S-58 Description** | For each RCNM where the value is not in table 2.2 of S-57 Part 3. | | | | | |
| **Message** | Invalid value of RCNM. | | | | | |
| **Solution** | Amend RCNM value. | | **Conformity** | Part 3 (2.2.1) | | |
| **Test Case No. 1** | RCNM value has been revised according to the error description. | | | | | |
| **Location** | 32°29'34.77"S 61°11'50.91"E | **S57 Encoding** | SOUNDG | - | | |
| **FOID or VRID** | VI0000000020 |  |  |  | | |
| **Screen Capture** |  | | | | | |
| **Expected Test Results** | 4: An error “Invalid value of RCNM” must be triggered. | | | | | |
| **Secondary Errors** | 21: An additional error “Vector record pointer field (VRPT) not referenced by an edge vector record” must be triggered. | | | | | |
|  | | | | | | |
| **Dataset Name** | AA400010 | **S‐58 Check** | 9a | | **Type** | C |
| **S-58 Description** | For each feature object of geometric primitive line where ORNT is Not equal to 1 (forward) OR 2  (reverse). | | | | | |
| **Message** | Invalid value of ORNT. | | | | | |
| **Solution** | Set value of ORNT to 1 (forward) or 2 (reverse). | | **Conformity** | Part 3 (4.7.2) | | |
| **Test Case No. 1** | Invalid value of ORNT has been given for COALNE (L) feature. | | | | | |
| **Location** | 32°29'40.06"S 61°14'48.02"E | **S57 Encoding** | COALNE (L) | - | | |
| **FOID or VRID** | AA 0000000140 00001 |  |  |  | | |
| **Screen Capture** |  | | | | | |
| **Expected Test Results** | 9a: An error “Invalid value of ORNT” must be triggered. | | | | | |
| **Secondary Errors** | None | | | | | |
|  | | | | | | |
| **Dataset Name** | AA400010 | **S‐58 Check** | 9b | | **Type** | C |
| **S-58 Description** | For each feature object of geometric primitive line where USAG is Not equal to Null. | | | | | |
| **Message** | Invalid value of USAG. | | | | | |
| **Solution** | Set value of USAG to 255 (null). | | **Conformity** | Part 3 (4.7.2) and  Appendix B.1 (3.8) | | |
| **Test Case No. 1** | Invalid value of USAG has been given for SLCONS (L) feature. | | | | | |
| **Location** | 32°29'16.23"S 61°14'45.76"E | **S57 Encoding** | SLCONS (L) | CATSLC=2  WATLEV=2 | | |
| **FOID or VRID** | AA 0000000141 00001 |  |  |  | | |
| **Screen Capture** |  | | | | | |
| **Expected Test Results** | 9b: An error “Invalid value of USAG” must be triggered. | | | | | |
| **Secondary Errors** | None | | | | | |
|  | | | | | | |
| **Dataset Name** | AA400010 | **S‐58 Check** | 9c | | **Type** | C |
| **S-58 Description** | For each feature object of geometric primitive line where MASK is Not equal to 1 (mask) AND is Not  equal to 2 (show). | | | | | |
| **Message** | Invalid value of MASK. | | | | | |
| **Solution** | Set MASK to 1 (mask), 2 (show). | | **Conformity** | Part 3 (4.7.2) and  Appendix B.1 (3.8) | | |
| **Test Case No. 1** | Invalid value of MASK has been given for RIVERS (L) feature. | | | | | |
| **Location** | 32°29'44.03"S 61°14'42.22"E | **S57 Encoding** | RIVERS (L) |  | | |
| **FOID or VRID** | AA 0000000142 00001 |  |  |  | | |
| **Screen Capture** |  | | | | | |
| **Expected Test Results** | 9c: An error “Invalid value of MASK” must be triggered. | | | | | |
| **Secondary Errors** | None | | | | | |
|  | | | | | | |
| **Dataset Name** | AA400010 | **S‐58 Check** | 10c | | **Type** | C |
| **S-58 Description** | For each feature object of geometric primitive point where MASK is Not equal to 255 (masking is not relevant). | | | | | |
| **Message** | Invalid value of MASK. | | | | | |
| **Solution** | Set MASK to 255 (masking is not relevant). | | **Conformity** | Part 3 (4.7.1) | | |
| **Test Case No. 1** | Invalid value of MASK has been given for OBSTRN (P) feature. | | | | | |
| **Location** | 32°29'23.38"S 61°14'50.63"E | **S57 Encoding** | OBSTRN (P) | QUASOU=6  VALSOU=32  WATLEV=3 | | |
| **FOID or VRID** | AA 0000000143 00001 |  |  |  | | |
| **Screen Capture** |  | | | | | |
| **Expected Test Results** | 10c: An error “Invalid value of MASK” must be triggered. | | | | | |
| **Secondary Errors** | 21: An additional error   “Vector record pointer field (VRPT) not referenced by an edge vector record” must be triggered. | | | | | |
|  | | | | | | |
| **Dataset Name** | AA400010 | **S‐58 Check** | 35 | | **Type** | C |
| **S-58 Description** | For each feature object where RVER is out of sequence. | | | | | |
| **Message** | RVER is out of sequence. | | | | | |
| **Solution** | Ensure RVER is sequential. | | **Conformity** | Part 3 (8.4.2.1)  and (8.4.3.1) | | |
| **Test Case No. 1** | Revised RVER filed 2 to 0 for RIVERS (L) feature in update file (AA400010.001). | | | | | |
| **Location** | 32°29'44.02"S 61°14'42.02"E | **S57 Encoding** | RIVERS (L) | - | | |
| **FOID or VRID** | FE-000010 |  |  |  | | |
| **Screen Capture** |  | | | | | |
| **Expected Test Results** | 35: An error “RVER is out of sequence” must be triggered. | | | | | |
| **Secondary Errors** | None | | | | | |
| **Test Case No. 2** | Revised RVER filed 2 to 0 for vector edge of RIVERS (L) feature in update file (AA400010.001). | | | | | |
| **Location** | 32°29'44.02"S 61°14'42.02"E | **S57 Encoding** | RIVERS (L) | - | | |
| **FOID or VRID** | VE-0000000008 |  |  |  | | |
| **Screen Capture** |  | | | | | |
| **Expected Test Results** | 35: An error “RVER is out of sequence” must be triggered. | | | | | |
| **Secondary Errors** | None | | | | | |
|  | | | | | | |
| **Dataset Name** | AA400010 | **S‐58 Check** | 88a | | **Type** | C |
| **S-58 Description** | For each feature object of geometric primitive area where ORNT is Not equal to 1 (forward) AND is Not equal to 2 (reverse). | | | | | |
| **Message** | Invalid value of ORNT. | | | | | |
| **Solution** | Set value of ORNT to 1 (forward) or 2 (reverse). | | **Conformity** | Part 3 (4.7.3) | | |
| **Test Case No. 1** | Invalid value of ORNT has been given for OBSTRN feature. | | | | | |
| **Location** | 32°28'45.21"S 61°14'46.81"E | **S57 Encoding** | OBSTRN (A) | QUASOU=6  VALSOU=34  WATLEV=3 | | |
| **FOID or VRID** | AA 0000000144 00001 |  |  |  | | |
| **Screen Capture** |  | | | | | |
| **Expected Test Results** | 88a: An error “Invalid value of ORNT” must be triggered. | | | | | |
| **Secondary Errors** | 21: An additional error  “Vector record pointer field (VRPT) not referenced by an edge vector record” must be triggered.  12: An additional error “object has no geometry” must be triggered. | | | | | |
|  | | | | | | |
| **Dataset Name** | AA400010 | **S‐58 Check** | 88b | | **Type** | C |
| **S-58 Description** | For each feature object of geometric primitive area where USAG is Not equal to 1 (exterior) AND is Not equal to 2 (interior) AND is Not equal to 3 (exterior boundary truncated by the data limit). | | | | | |
| **Message** | Invalid value of USAG. | | | | | |
| **Solution** | Set USAG to 1(exterior), 2(interior) or 3 (exterior  boundary, truncated by the data limit). | | **Conformity** | Part 3 (4.7.3) | | |
| **Test Case No. 1** | Invalid value of USAG has been given for ACHARE (A) feature. | | | | | |
| **Location** | 32°28'26.20"S 61°14'20.02"E | **S57 Encoding** | ACHARE (A) | - | | |
| **FOID or VRID** | AA 0000000145 00001 |  |  |  | | |
| **Screen Capture** |  | | | | | |
| **Expected Test Results** | 88b: An error “Invalid value of USAG” must be triggered. | | | | | |
| **Secondary Errors** | 21: An additional error “Vector record pointer field (VRPT) not referenced by an edge vector record” must be triggered. | | | | | |
|  | | | | | | |
| **Dataset Name** | AA400010 | **S‐58 Check** | 88c | | **Type** | C |
| **S-58 Description** | For each feature object of geometric primitive area where MASK is Not equal to 1 (mask) AND is Not equal to 2 (show) AND is Not equal to 255 (masking is not relevant). | | | | | |
| **Message** | Invalid value of MASK. | | | | | |
| **Solution** | Set MASK to 1 (mask), 2 (show) or 255 (masking is not  relevant). | | **Conformity** | Part 3 (4.7.3) | | |
| **Test Case No. 1** | Invalid value of MASK has been given for RESARE (A) feature. | | | | | |
| **Location** | 32°28'56.13"S 61°14'19.14"E | **S57 Encoding** | RESARE (A) | RESTRN=2 | | |
| **FOID or VRID** | AA 0000000146 00001 |  |  |  | | |
| **Screen Capture** |  | | | | | |
| **Expected Test Results** | 88c: An error “Invalid value of MASK” must be triggered. | | | | | |
| **Secondary Errors** | 21: An additional error   “Vector record pointer field (VRPT) not referenced by an edge vector record” must be triggered. | | | | | |

1. **Test Dataset: AA400011**

**S‐58 Recommended ENC Validation Checks covered in this section:**

|  |  |
| --- | --- |
| **S‐58 Check** | **Description** |
| 8 | For each feature object where an attribute code is repeated. |
| 1008 | For each ER (update) file where an AGEN subfield value of the DSID field or FOID field is not identical to the AGEN subfield values in the EN (base) file. |
| 1010 | For each FRID field in an ER (update) file where RUIN is Equal to 3 (modify) AND the FOID for the modified object is not identical in the EN (base) and ER (update) files. |

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| **Dataset Name** | AA400011 | **S‐58 Check** | 8 | | **Type** | C |
| **S-58 Description** | For each feature object where an attribute code is repeated. | | | | | |
| **Message** | Duplicate attribute code on an object. | | | | | |
| **Solution** | Remove or amend duplicate attribute code. | | **Conformity** | Part 3 (4.4), (4.5) and (5.1.2) | | |
| **Test Case No. 1** | LNDMRK (P) feature has been created with duplicate attribute code. | | | | | |
| **Location** | 32°30'20.86"S 60°52'54.34"E | **S57 Encoding** | LNDMRK (P) | CATLMK=17  CATLMK=2 | | |
| **FOID or VRID** | AA 0000000157 00001 |  |  |  | | |
| **Screen Capture** |  | | | | | |
| **Expected Test Results** | 8: An error “Duplicate attribute code on an object” must be triggered. | | | | | |
| **Secondary Errors** | None | | | | | |
|  | | | | | | |
| **Dataset Name** | AA400011 | **S‐58 Check** | 1008 | | **Type** | C |
| **S-58 Description** | For each ER (update) file where an AGEN subfield value of the DSID field or FOID field is not identical to the AGEN subfield values in the EN (base) file. | | | | | |
| **Message** | AGEN subfield values do not agree between ER (update) and EN (base) files. | | | | | |
| **Solution** | Amend AGEN subfield values to agree. | | **Conformity** | Part 3 (4.3.1) and  (7.3.1.1) | | |
| **Test Case No. 1** | AGEN 0\_ in DSID subfield has been revised. | | | | | |
| **Location** | DSID parameter | **S57 Encoding** | - | - | | |
| **FOID or VRID** | - |  |  |  | | |
| **Screen Capture** |  | | | | | |
| **Expected Test Results** | 1008: An error “AGEN subfield values do not agree between ER (update) and EN (base) files” must be triggered. | | | | | |
| **Secondary Errors** | None | | | | | |
| **Test Case No. 2** | RIVERS (L) feature has been created with AGEN subfield values do not agree between ER (update) and EN (base) files. | | | | | |
| **Location** | 32°31'27.78"S 60°53'18.06"E | **S57 Encoding** | RIVERS (L) | STATUS=8 | | |
| **FOID or VRID** | AA 0000000036 00001 (Base file)  0\_ 0000009223 00256 (Update file) |  |  |  | | |
| **Screen Capture** |  | | | | | |
| **Expected Test Results** | 1008: An error “AGEN subfield values do not agree between ER (update) and EN (base) files” must be triggered. | | | | | |
| **Secondary Errors** | 1010: An additional error “FOID for the modified object is not identical in the EN (base) and ER (update) files” must be triggered. | | | | | |
|  | | | | | | |
| **Dataset Name** | AA400011 | **S‐58 Check** | 1010 | | **Type** | C |
| **S-58 Description** | For each FRID field in an ER (update) file where RUIN is Equal to 3 (modify) AND the FOID for the  modified object is not identical in the EN (base) and ER (update) files. | | | | | |
| **Message** | FOID for the modified object is not identical in the EN (base) and ER (update) files. | | | | | |
| **Solution** | Amend FOIDs to be identical or make separate insert and  delete updates. | | **Conformity** | Part 3 (8.4.2) | | |
| **Test Case No. 1** | LNDMRK (P) with FOID for the modified object is not identical in the EN (base) and ER (update) files. | | | | | |
| **Location** | 32°33'02.42"S 60°54'10.55"E | **S57 Encoding** | LNDMRK (P) | CATLMK=17  CONVIS=1  FUNCTN=39 | | |
| **FOID or VRID** | AA 0000000067 00001 (Base file)  AA 0000000067 00002 (Update file) |  |  |  | | |
| **Screen Capture** |  | | | | | |
| **Expected Test Results** | 1010: An error “FOID for the modified object is not identical in the EN (base) and ER (update) files” must be triggered. | | | | | |
| **Secondary Errors** | None | | | | | |

1. **Test Dataset: AA400012**

**S‐58 Recommended ENC Validation Checks covered in this section:**

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| --- | --- |
| **S‐58 Check** | **Description** |
| 504 | For each CANBNK, LAKSHR, RIVBNK SQUARE, M\_HDAT, M\_PROD, M\_UNIT, C\_STAC, $AREAS, $LINES, $CSYMB, $COMPS, or $TEXTS feature object. |
| 545 | For each feature object which does not have a valid feature object class label/code as defined by the Object Catalogue and  S-57 Supplement No.3. |
| 547 | For each feature object which contains attributes outside the list of permissible attributes for the feature object as defined in the Object Catalogue and S-57 Supplement No.3. |
| 553 | For each Group 1 feature object where any of DATSTA, DATEND, PERSTA or PEREND is Present AND notNull. |
| 1011 | For each feature object where TXTDSC, NTXTDS, PICREP is ‘notNull’ and references a file that is Not present in the exchange set OR their names do not conform to the ENC Product Specification. |
| 1015 | If the text and picture file names are not unique OR not with extension (e.g. .TXT and .TIF). |
| 1023 | For each picture file which is not in the TIF format. |
| 1679 | For each feature object where attributes of types enumerated ('E'), float ('F'), integer ('I') or code string ('A') have more than one value. |
| 1804 | For each OBSTRN, UWTROC or WRECKS feature object of geometric primitive point which TOUCHES an edge of a DEPARE, DRGARE or UNSARE feature object. |

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| **Dataset Name** | AA400012 | **S‐58 Check** | 504 | | **Type** | C |
| **S-58 Description** | For each CANBNK, LAKSHR, RIVBNK SQUARE, M\_HDAT, M\_PROD, M\_UNIT, C\_STAC, $AREAS, $LINES, $CSYMB, $COMPS, or $TEXTS feature object. | | | | | |
| **Message** | Prohibited objects exist within the dataset. | | | | | |
| **Solution** | Remove prohibited objects. | | **Conformity** | 3.2 | | |
| **Test Case No. 1** | Prohibited objects have been created. | | | | | |
| **Location** | 32°30'34.91"S 60°57'58.13"E | **S57 Encoding** | CANBNK (L) LAKSHR (L)  RIVBNK (L)  $LINES (L)  SQUARE (A)  M\_HDAT (A)  M\_PROD (A)  M\_UNIT (A)  $AREAS (A)  $CSYMB (P) $COMPS (P)  $TEXTS (P)  C\_STAC |  | | |
| **FOID or VRID** | AA 0000003552 00001  AA 0000003551 00001  AA 0000003550 00001  AA 0000003553 00001  AA 0000003402 00001  AA 0000003405 00001  AA 0000003404 00001  AA 0000003403 00001  AA 0000003406 00001  AA 0000003568 00001  AA 0000003570 00001  AA 0000003569 00001  AA 0000003714 00001 |  |  |  | | |
| **Screen Capture** |  | | | | | |
| **Expected Test Results** | 504: 13 errors “prohibited object” must be triggered. | | | | | |
| **Secondary Errors** | 545: 13 additional errors “unknown object class label” must be triggered. | | | | | |
|  | | | | | | |
| **Dataset Name** | AA400012 | **S‐58 Check** | 545 | | **Type** | C |
| **S-58 Description** | For each feature object which does not have a valid feature object class label/code as defined by the Object Catalogue and S-57 Supplement No.3. | | | | | |
| **Message** | Object has invalid object class code. | | | | | |
| **Solution** | Amend object class code. | | **Conformity** | 3.2 and  Supplement No.3  Ch.2 | | |
| **Test Case No. 1** | New object feature class created achare. | | | | | |
| **Location** | 32°33'24.75"S 60°57'08.44"E | **S57 Encoding** | achare |  | | |
| **FOID or VRID** | FE-0000000500/VE-0000000170 |  |  |  | | |
| **Screen Capture** |  | | | | | |
| **Expected Test Results** | 545: An error “unknown object class label” must be triggered. | | | | | |
| **Secondary Errors** | 21: An additional error “orphan which is the edge is dose not point to end node” must be triggered. | | | | | |
|  | | | | | | |
| **Dataset Name** | AA400012 | **S‐58 Check** | 547 | | **Type** | C |
| **S-58 Description** | For each feature object which contains attributes outside the list of permissible attributes for the feature object as defined in the Object Catalogue and S-57 Supplement No.3. | | | | | |
| **Message** | Attribute not permitted on feature object class. | | | | | |
| **Solution** | Remove attribute. | | **Conformity** | 3.2 and  Supplement No.3  Ch.2 | | |
| **Test Case No. 1** | HRBARE encoded with non-list of permissible attributes for the object. | | | | | |
| **Location** | 32°32'23.97"S 60°58'22.63"E | **S57 Encoding** | HRBARE (A) | DATEND: 20171229  DATSTA:20171229 | | |
| **FOID or VRID** | AA 0000003467 00001 |  |  |  | | |
| **Screen Capture** |  | | | | | |
| **Expected Test Results** | 547: An error “attribute not allowed for HRBARE” must be triggered. | | | | | |
| **Secondary Errors** | None | | | | | |
|  | | | | | | |
| **Dataset Name** | AA400012 | **S‐58 Check** | 553 | | **Type** | C |
| **S-58 Description** | For each Group 1 feature object where any of DATSTA, DATEND, PERSTA or PEREND is Present AND notNull. | | | | | |
| **Message** | Attributes DATSTA, DATEND, PERSTA or PEREND are encoded on Group 1 objects. | | | | | |
| **Solution** | Remove these attributes from Group 1 objects. | | **Conformity** | 3.10.1 and Logical  consistency | | |
| **Test Case No. 1** | Group 1 objects created with attributes DATSTA, DATEND, PERSTA or PEREND. | | | | | |
| **Location** | 32°30'05.28"S 60°55'33.29"E | **S57 Encoding** | DEPARE  DRGARE  FLODOC  HULKES  LNDARE  PONTON  UNSARE | PERSTA:20171229  PEREND:20171229  DATSTA:20171229  DATEND:20171229  STATUS=5 | | |
| **FOID or VRID** | AA 0000003464 00001  AA 0000003460 00001  AA 0000003463 00001  AA 0000003462 00001  AA 0000003461 00001  AA 0000003466 00001  AA 0000003465 00001 |  |  |  | | |
| **Screen Capture** |  | | | | | |
| **Expected Test Results** | 553: An error “Attributes DATSTA, DATEND, PERSTA or PEREND are encoded on Group 1 objects.” must be triggered. | | | | | |
| **Secondary Errors** | 547: An error “attribute not allowed for Group1 objects” must be triggered.  2000: An error “meaningless value of status” must be triggered. | | | | | |
|  | | | | | | |
| **Dataset Name** | AA400012 | **S‐58 Check** | 1011 | | **Type** | C |
| **S-58 Description** | For each feature object where TXTDSC, NTXTDS, PICREP is ‘notNull’ and references a file that is Not  present in the exchange set OR their names do not conform to the ENC Product Specification. | | | | | |
| **Message** | Text or picture file referenced by a feature object is not present in the exchange set or its  name is non-conformant. | | | | | |
| **Solution** | Ensure referenced files exist and are named correctly. | | **Conformity** | Appendix B.1  (5.4.1 and 5.6.4) | | |
| **Test Case No. 1** | CBLARE, DMPGRD and LNDMRK features created with TXTDSC, NTXTDS and PICREP ‘notNull’ ensure referenced file is not existing. | | | | | |
| **Location** | 32°30'16.44"S 60°57'06.53"E  32°31'21.73"S 60°55'55.86"E  32°30'26.96"S 60°56'00.02"E | **S57 Encoding** | CBLARE (A) DMPGRD (A) LNDMRK (P) | NTXTDS  TXTDSC  PICREP | | |
| **FOID or VRID** | AA 0000003725 00001  AA 0000003728 00001  AA 0000003488 00001 |  |  |  | | |
| **Screen Capture** |  | | | | | |
| **Expected Test Results** | 1011: AN error “Check for each feature object where TXTDSC is notNull and references a file that is not present in the exchange set” must be triggered. | | | | | |
| **Secondary Errors** | None | | | | | |
| **Test Case No. 2** | ACHARE, DRGARE and BOYSPP features created with TXTDSC, NTXTDS and PICREP ‘notNull’ their names do not conform to the ENC Product Specification. | | | | | |
| **Location** | 32°31'29.72"S 60°56'55.92"E  32°31'41.27"S 60°55'29.59"E  32°31'39.67"S 60°57'13.66"E | **S57 Encoding** | ACHARE (A) BOYSPP (P)  DRGARE (A) | NTXTDS  PICREP  TXTDSC | | |
| **FOID or VRID** | AA 0000003717 00001  AA 0000003593 00001  AA 0000003435 00001 |  |  |  | | |
| **Screen Capture** |  | | | | | |
| **Expected Test Results** | 1011: AN error “Check for each feature object where TXTDSC, NTXTDS, PICREP is notNull and references a file that is present in the exchange set its name is non-conformant” must be triggered. | | | | | |
| **Secondary Errors** | None | | | | | |
|  | | | | | | |
| **Dataset Name** | AA400012 | **S‐58 Check** | 1015 | | **Type** | C |
| **S-58 Description** | If the text and picture file names are not unique OR not with extension (e.g. .TXT and .TIF). | | | | | |
| **Message** | Text and picture file names have incorrect format/name. | | | | | |
| **Solution** | Use correctly formatted and named text and picture files. | | **Conformity** | Appendix B.1 (5.6.4) | | |
| **Test Case No. 1** | BRIDGE feature created with TXTDSC and PICREP file names have incorrect format. | | | | | |
| **Location** | 32°30'51.38"S 60°56'35.07"E | **S57 Encoding** | BRIDGE (L) | TXTDSC  PICREP | | |
| **FOID or VRID** | AA 0000003730 00001 |  |  |  | | |
| **Screen Capture** |  | | | | | |
| **Expected Test Results** | 1015: An error “file name have incorrect format TXTDSC and PICREF” must be triggered. | | | | | |
| **Secondary Errors** | 1011: An additional error “Check for each feature object where TXTDSC, PICREP is notNull and references a file that is present in the exchange set its name is non-conformant” must be triggered.  1023: An additional error “Check for each picture file which is not in the TIF format” must be triggered. | | | | | |
|  | | | | | | |
| **Dataset Name** | AA400012 | **S‐58 Check** | 1023 | | **Type** | C |
| **S-58 Description** | For each picture file which is not in the TIF format. | | | | | |
| **Message** | Picture file not in TIF format. | | | | | |
| **Solution** | Replace picture file with TIF format version. | | **Conformity** | Appendix B.1,  Annex A (4.8.20) | | |
| **Test Case No. 1** | BUISGL feature created with PICREP file in PNG format. | | | | | |
| **Location** | 32°30'46.03"S 60°57'44.82"E | **S57 Encoding** | BUISGL (P) | PICREP | | |
| **FOID or VRID** | AA 0000003547 0001 |  |  |  | | |
| **Screen Capture** |  | | | | | |
| **Expected Test Results** | 1023: An error “check for each picture file which is not in the TIF format” must be triggered. | | | | | |
| **Secondary Errors** | None | | | | | |
|  | | | | | | |
| **Dataset Name** | AA400012 | **S‐58 Check** | 1679 | | **Type** | C |
| **S-58 Description** | For each feature object where attributes of types enumerated ('E'), float ('F'), integer ('I') or code string ('A') have more than one value. | | | | | |
| **Message** | More than one value present for attributes of the following types; enumerated ('E'), float ('F'), integer ('I') or code string ('A'). | | | | | |
| **Solution** | Remove unnecessary attribute values. | | **Conformity** | Appendix A, Ch.2  (2.1) | | |
| **Test Case No. 1** | WRECK feature object created by encoding the CATWRK with more than one value. | | | | | |
| **Location** | 32°32'27.32"S 60°57'07.05"E | **S57 Encoding** | WRECK (P) | CATWRK = 5,4 | | |
| **FOID or VRID** | AA 0000003688 00001 |  |  |  | | |
| **Screen Capture** |  | | | | | |
| **Expected Test Results** | 1679: An error “attribute CATWRK must have only one value” must be triggered. | | | | | |
| **Secondary Errors** | -None- | | | | | |
| **Test Case No. 2** | LNDMRK (P) feature object created by encoding the ELEVAT with more than one value. | | | | | |
| **Location** | 32°31'01.89"S 60°56'19.96"E | **S57 Encoding** | LNDMRK (P) | ELEVAT = 30  ELEVAT = 10 | | |
| **FOID or VRID** | AA 0000000205 00001 |  |  |  | | |
| **Screen Capture** |  | | | | | |
| **Expected Test Results** | 1679: An error “attribute ELEVAT must have only one value” must be triggered. | | | | | |
| **Secondary Errors** | 8: An additional error “Duplicate attribute code on an object” must be triggered. | | | | | |
| **Test Case No. 3** | SBDARE (P) feature object created by encoding the SCAMIN with more than one value. | | | | | |
| **Location** | 32°31'02.28"S 60°56'50.91"E | **S57 Encoding** | SBDARE (P) | SCAMIN = 4000  SCAMIN = 5000 | | |
| **FOID or VRID** | AA 0000000207 00001 |  |  |  | | |
| **Screen Capture** |  | | | | | |
| **Expected Test Results** | 1679: An error “attribute SCAMIN must have only one value” must be triggered. | | | | | |
| **Secondary Errors** | 8: An additional error “Duplicate attribute code on an object” must be triggered. | | | | | |
| **Test Case No. 4** | LIGHTS (P) feature object created by encoding the SIGGRP with more than one value. | | | | | |
| **Location** | 32°31'01.89"S 60°56'19.96"E | **S57 Encoding** | LIGHTS (P) | SIGGRP = (1)  SIGGRP = (2) | | |
| **FOID or VRID** | AA 1522479131 00001 |  |  |  | | |
| **Screen Capture** |  | | | | | |
| **Expected Test Results** | 1679: An error “attribute SIGGRP must have only one value” must be triggered. | | | | | |
| **Secondary Errors** | 8: An additional error “Duplicate attribute code on an object” must be triggered. | | | | | |
|  | | | | | | |
| **Dataset Name** | AA400012 | **S‐58 Check** | 1804 | | **Type** | C |
| **S-58 Description** | For each OBSTRN, UWTROC or WRECKS feature object of geometric primitive point which TOUCHES an edge of a DEPARE, DRGARE or UNSARE feature object. | | | | | |
| **Message** | Point object touches an edge between Group 1 objects. | | | | | |
| **Solution** | Amend Group 1 object geometry so that it does not touch the point object. | | **Conformity** | 6.1 | | |
| **Test Case No. 1** | OBSTRN, UWTROC and WRECKS (P) features created which touches an edge between group 1 objects. | | | | | |
| **Location** | 32°32'20.87"S 60°57'21.47"E | **S57 Encoding** | OBSTRN (P)  UWTROC (P)  WRECKS (P) | WATLEV=3 | | |
| **FOID or VRID** | AA 0000003687 00001  AA 0000003686 00001  AA 0000003685 00001 |  |  |  | | |
| **Screen Capture** |  | | | | | |
| **Expected Test Results** | 1804: An error “Point object touches an edge between Group 1 objects” must be triggered. | | | | | |
| **Secondary Errors** | None | | | | | |

1. **Test Dataset: 00400013**

**S‐58 Recommended ENC Validation Checks covered in this section:**

|  |  |
| --- | --- |
| **S‐58 Check** | **Description** |
| 526 | If the COUN subfield of the DSPM field is Not equal to 1 (latitude/longitude). |
| 539 | If DSID-PROF is Not equal to 1 (EN) AND is Not Equal to 2 (ER). |
| 1013 | If volume name is not in accordance with the ENC Product Specification. |
| 1518a | If the AGEN subfield of the DSID field is not one of the values listed in S-62 sections I and II. |

|  |  |  |  |  |  |  |
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| **Dataset Name** | 00400013 | **S‐58 Check** | 526 | | **Type** | C |
| **S-58 Description** | If the COUN subfield of the DSPM field is Not equal to 1 (latitude/longitude). | | | | | |
| **Message** | COUN does not equal 1 (latitude/longitude). | | | | | |
| **Solution** | Set the COUN subfield to 1 (latitude/longitude). | | **Conformity** | 4.4 | | |
| **Test Case No. 1** | Revised COUN subfield of the DSPM field 1 to 2. | | | | | |
| **Location** | - | **S57 Encoding** | - |  | | |
| **FOID or VRID** | DSPM parameter. |  |  |  | | |
| **Screen Capture** |  | | | | | |
| **Expected Test Results** | 526: An error “COUN does not equal 1 (latitude/longitude)” must be triggered. | | | | | |
| **Secondary Errors** | None | | | | | |
|  | | | | | | |
| **Dataset Name** | 00400013 | **S‐58 Check** | 539 | | **Type** | C |
| **S-58 Description** | If DSID-PROF is Not equal to 1 (EN) AND is Not Equal to 2 (ER). | | | | | |
| **Message** | Invalid value of DSID-PROF. | | | | | |
| **Solution** | Set DSID-PROF to either 1 (EN) or 2 (ER). | | **Conformity** | 6.3 and 6.4 and  Part 3 (7.3.1.1) | | |
| **Test Case No. 1** | DSID-PROF has been set to 4. | | | | | |
| **Location** | - | **S57 Encoding** | - |  | | |
| **FOID or VRID** | DSID Parameter. |  |  |  | | |
| **Screen Capture** |  | | | | | |
| **Expected Test Results** | 539: An error “Invalid value of DSID-PROF” must be triggered. | | | | | |
| **Secondary Errors** | None | | | | | |
|  | | | | | | |
| **Dataset Name** | AA400003 | **S‐58 Check** | 1013 | | **Type** | C |
| **S-58 Description** | If volume name is not in accordance with the ENC Product Specification. | | | | | |
| **Message** | Volume name is not in accordance with the ENC Product Specification. | | | | | |
| **Solution** | Amend the volume name. | | **Conformity** | Appendix B.1  (5.4.2) | | |
| **Test Case No. 1** | Volume name has been revised from V01X01 to W01X01 in CATLOG.031. | | | | | |
| **Location** | - | **S57 Encoding** | - |  | | |
| **FOID or VRID** | - |  |  |  | | |
| **Screen Capture** |  | | | | | |
| **Expected Test Results** | 1013: An error “Volume name is not in accordance with the ENC Product Specification” must be triggered. | | | | | |
| **Secondary Errors** | 353: An error “CRC of the data file is not equal to CRC subfield of catalog record”. | | | | | |
|  | | | | | | |
| **Dataset Name** | 00400013 | **S‐58 Check** | 1518a | | **Type** | C |
| **S-58 Description** | If the AGEN subfield of the DSID field is not one of the values listed in S-62 sections I and II. | | | | | |
| **Message** | Producing Agency code is not a valid S-62 value. | | | | | |
| **Solution** | Amend AGEN subfield to a valid S-62 value. | | **Conformity** | 2.2.1 | | |
| **Test Case No. 1** | DSID-AGEN has been set to ‘0\_. | | | | | |
| **Location** | - | **S57 Encoding** | - |  | | |
| **FOID or VRID** | - |  |  |  | | |
| **Screen Capture** |  | | | | | |
| **Expected Test Results** | 1518a: An error “Producing Agency code is not a valid S-62 value” must be triggered. | | | | | |
| **Secondary Errors** | 531: An error “bad cell name wrong agency”. | | | | | |

1. **Test Dataset: AA400014**

**S‐58 Recommended ENC Validation Checks covered in this section:**

|  |  |
| --- | --- |
| **S‐58 Check** | **Description** |
| 7 | For each feature object with invalid AGEN, FIDN or FIDS values. |
| 13b | For each feature object of geometric primitive line which references multiple edges where the end node of a vector record is not identical to the beginning node of the following vector record. |
| 518a | For each FLODOC, DRGARE, LNDARE, HULKES, PONTON, DEPARE or UNSARE feature object of geometric primitive area where the GRUP subfield of the FRID is Not equal to 1 (Group 1). |
| 518b | For each feature object (excluding FLODOC, DRGARE, LNDARE, HULKES, PONTON, DEPARE and UNSARE of geometric primitive area) where the GRUP subfield of the FRID is Not equal to  2 (Group 2). |
| 531 | If the Dataset file name is not in accordance with the ENC Product Specification. |
| 1016 | If the calculated CRC value of a file is Not equal to that stated in the catalogue file. |
| 1518b | If the first 2 characters of the data set file name do not correspond to the value of the AGEN subfield of the DSID field. |

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| **Dataset Name** | AA400014 | **S‐58 Check** | 7 | | **Type** | C |
| **S-58 Description** | For each feature object with invalid AGEN, FIDN or FIDS values. | | | | | |
| **Message** | Invalid values of AGEN, FIDN or FIDS. | | | | | |
| **Solution** | Amend AGEN, FIDN or FIDS value. | | **Conformity** | Part 3 (4.3.1) and  (4.3.2) | | |
| **Test Case No. 1** | AGEN values have been assigned with invalid values. | | | | | |
| **Location** | 32°32'36.10"S 61°06'47.97"E | **S57 Encoding** | BOYSPP (P) | BOYSHP=4  COLOUR=6  CATSPM=27 | | |
| **FOID or VRID** | 1C 0393032998 12345 |  |  |  | | |
| **Screen Capture** |  | | | | | |
| **Expected Test Results** | 7: An error “Invalid values of AGEN” must be triggered. | | | | | |
| **Secondary Errors** | 85: An additional error “producing agency code in FOID differs from that in DSID” must be triggered. | | | | | |
| **Test Case No. 2** | FIDN values have been assigned with invalid values. | | | | | |
| **Location** | 32°33'02.54"S 61°07'54.56"E | **S57 Encoding** | LNDMRK (P) | CATLMK= 17  CONVIS= 2 | | |
| **FOID or VRID** | AA 0000000000 12345 |  |  |  | | |
| **Screen Capture** |  | | | | | |
| **Expected Test Results** | 7: An error “Invalid values of FIDN” must be triggered. | | | | | |
| **Secondary Errors** | 85: An additional error “producing agency code in FOID differs from that in DSID” must be triggered. | | | | | |
| **Test Case No. 3** | FIDS values have been assigned with invalid values. | | | | | |
| **Location** | 32°32'05.78"S 61°06'59.56"E | **S57 Encoding** | SBDARE (P) | NATSUR=1 | | |
| **FOID or VRID** | AA 0000000267 00000 |  |  |  | | |
| **Screen Capture** |  | | | | | |
| **Expected Test Results** | 7: An error “Invalid values of FIDS” must be triggered. | | | | | |
| **Secondary Errors** | 85: An additional error “producing agency code in FOID differs from that in DSID” must be triggered. | | | | | |
|  | | | | | | |
| **Dataset Name** | AA400014 | **S‐58 Check** | 13b | | **Type** | C |
| **S-58 Description** | For each feature object of geometric primitive line which references multiple edges where the end node of a vector record is not identical to the beginning node of the following vector record. | | | | | |
| **Message** | Sequential edges do not have the same end and beginning nodes. | | | | | |
| **Solution** | Ensure end and beginning nodes of sequential edges  match. | | **Conformity** | Part 3 (5.1.3.2) | | |
| **Test Case No. 1** | RIVERS (L) feature created. | | | | | |
| **Location** | 32°33'08.68"S 61°08'00.31"E | **S57 Encoding** | RIVERS (L) |  | | |
| **FOID or VRID** | AA 0000004046 00001 |  |  |  | | |
| **Screen Capture** |  | | | | | |
| **Expected Test Results** | T0013b: An error “Sequential edges do not have the same start and end nodes” must be  Triggered. | | | | | |
| **Secondary Errors** | None | | | | | |
|  | | | | | | |
| **Dataset Name** | AA400014 | **S‐58 Check** | 518a | | **Type** | C |
| **S-58 Description** | For each FLODOC, DRGARE, LNDARE, HULKES, PONTON, DEPARE or UNSARE feature object of geometric primitive area where the GRUP subfield of the FRID is Not equal to 1 (Group 1). | | | | | |
| **Message** | Skin of the earth objects are not encoded as Group 1. | | | | | |
| **Solution** | Ensure that the FRID subfield GRUP is set to 1 (Group 1) for all skin of the earth feature objects. | | **Conformity** | 3.10.1 | | |
| **Test Case No. 1** | FLODOC, DRGARE, LNDARE, HULKES, PONTON, DEPARE or UNSARE features are created as a group 2 objects | | | | | |
| **Location** | 32°33'57.40"S 61°08'49.04"E | **S57 Encoding** | DEPARE  DRGARE  FLODOC  HULKES  LNDARE  PONTON  UNSARE |  | | |
| **FOID or VRID** | AA 0000004048 00001  AA 0000004030 00001  AA 0000004035 00001  AA 0000004028 00001  AA 0000003980 00001  AA 0000004026 00001  AA 0000004038 00001  AA 0000000259 00001  AA 0000000270 00001  AA 0000000272 00001  AA 0000000679 00001  AA 0000003998 00001  AA 0000004043 00001  AA 0000003994 00001  AA 0000003992 00001 |  |  |  | | |
| **Screen Capture** |  | | | | | |
| **Expected Test Results** | 518a: An error ”Skin of the earth objects are not encoded as Group 1” must be triggered. | | | | | |
| **Secondary Errors** | 19: An additional error “edge coincides with data limit border, but has no USAG=C in object” must be triggered.  42: An additional error “edge is common border of more than two TG1 objects” must be triggered. | | | | | |
|  | | | | | | |
| **Dataset Name** | AA400014 | **S‐58 Check** | 518b | | **Type** | C |
| **S-58 Description** | For each feature object (excluding FLODOC, DRGARE, LNDARE, HULKES, PONTON, DEPARE and UNSARE of geometric primitive area) where the GRUP subfield of the FRID is Not equal to  2 (Group 2). | | | | | |
| **Message** | Group 2 objects are not encoded as Group 2. | | | | | |
| **Solution** | Ensure that the FRID subfield GRUP is set to 2 (Group 2) for all non-skin of the earth feature objects. | | **Conformity** | 3.10.2 | | |
| **Test Case No. 1** | These features are captured as a group 1 objects | | | | | |
| **Location** | 32°32'08.67"S 61°06'59.88"E | **S57 Encoding** | BOYSPP  COALNE  DEPCNT  LNDMRK  M\_COVR  M\_QUAL  M\_NSYS  RIVERS  SBDARE  SOUNDG  WRECKS |  | | |
| **FOID or VRID** | 1C 0393032998 12345  AA 0000003983 00001  AA 0000003989 00001  AA 0000003986 00001  AA 0000000264 00001  AA 0000000265 00001  AA 0000000269 00001  AA 0000000271 00001  AA 0000003985 00001  AA 0000003990 00001  AA 0000000000 12345  AA 0624991259 12345  AA 0000004050 00001  AA 0000000262 00001  AA 0000004046 00001  AA 0000000266 00001  AA 0000000267 00000  AA 0000004591 00001  AA 0000004592 00001  AA 0000004593 00001  AA 0000004594 00001  AA 0000004595 00001  AA 0000004596 00001  AA 0000004597 00001  AA 0000004598 00001  AA 0000004599 00001  AA 0000004600 00001  AA 0000004601 00001  AA 0000004602 00001  AA 0000004603 00001  AA 0000004604 00001  AA 0000004605 00001  AA 0000004606 00001  AA 0000004607 00001  AA 0000004608 00001  AA 0000004609 00001  AA 0000004610 00001  AA 0000004611 00001  AA 0000004612 00001  AA 0000004613 00001  AA 0000004614 00001  AA 0000000686 00001 |  |  |  | | |
| **Screen Capture** |  | | | | | |
| **Expected Test Results** | 518b: An error “Group 2 objects are not encoded as Group 2” must be triggered. | | | | | |
| **Secondary Errors** | 554: An additional error “edge is shared by M\_COVR with CATCOV=1 and more than one TG1 object” must be triggered. | | | | | |
|  | | | | | | |
| **Dataset Name** | AA400014 | **S‐58 Check** | 531 | | **Type** | C |
| **S-58 Description** | If the Dataset file name is not in accordance with the ENC Product Specification. | | | | | |
| **Message** | Dataset file name is not in accordance with the ENC Product Specification. | | | | | |
| **Solution** | Amend file names. | | **Conformity** | 5.6.3 | | |
| **Test Case No. 1** | Dataset file name amended according to the error description. | | | | | |
| **Location** | - | **S57 Encoding** | - |  | | |
| **FOID or VRID** | - |  |  |  | | |
| **Screen Capture** |  | | | | | |
| **Expected Test Results** | 531: An error “file name is not in accordance with ENC product specification: Invalid producer code Reference” must be triggered. | | | | | |
| **Secondary Errors** | 85: An additional error “producing agency code in FOID differs from that in DSID” must be triggered.  1518b: An additional error “illegal value of DSID.AGEN - is not the same as the first two characters of the data set file name” must be triggered. | | | | | |
|  | | | | | | |
| **Dataset Name** | AA400014 | **S‐58 Check** | 1016 | | **Type** | C |
| **S-58 Description** | If the calculated CRC value of a file is Not equal to that stated in the catalogue file. | | | | | |
| **Message** | CRC values do not match. | | | | | |
| **Solution** | Amend CRC value. | | **Conformity** | Appendix B.1 (5.9.1) | | |
| **Test Case No. 1** | CRC value in CATALOG file has been amended. | | | | | |
| **Location** | - | **S57 Encoding** | - |  | | |
| **FOID or VRID** | - |  |  |  | | |
| **Screen Capture** | - | | | | | |
| **Expected Test Results** | 1016: An error “CRC values do not match” must be triggered. | | | | | |
| **Secondary Errors** | None | | | | | |
|  | | | | | | |
| **Dataset Name** | AA400014 | **S‐58 Check** | 1518b | | **Type** | C |
| **S-58 Description** | If the first 2 characters of the data set file name do not correspond to the value of the AGEN subfield of the DSID field. | | | | | |
| **Message** | Data set file name does not begin with the agency code corresponding to that set in the AGEN  subfield of the DSID field. | | | | | |
| **Solution** | Amend the first 2 characters of the data set file name. | | **Conformity** | 2.2.1 | | |
| **Test Case No. 1** | First 2 characters of the data set file name has been amended. | | | | | |
| **Location** | - | **S57 Encoding** | - |  | | |
| **FOID or VRID** | - |  |  |  | | |
| **Screen Capture** |  | | | | | |
| **Expected Test Results** | 1518b: An error “illegal value of DSID.AGEN - is not the same as the first two characters of the data set file name” must be triggered. | | | | | |
| **Secondary Errors** | 531: An additional error “file name is not in accordance with ENC product specification: Invalid producer code Reference” must be triggered. | | | | | |

1. **Test Dataset: AA400015**

**S‐58 Recommended ENC Validation Checks covered in this section:**

|  |  |
| --- | --- |
| **S‐58 Check** | **Description** |
| 24 | For each SOUNDG feature object which does not reference a SG3D field with X, Y and Z values. |
| 26a | For each subfield where the value is not within the range defined in the S-57 format description. |
| 536 | If a field without a repetition factor repeats. |
| 540a | If mandatory records, fields and subfields are not Present OR are Null where the “Null” value is not allowed. |
| 540b | If data set file contains prohibited records, fields or subfields. |

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| **Dataset Name** | AA400015 | **S‐58 Check** | 24 | | **Type** | C |
| **S-58 Description** | For each SOUNDG feature object which does not reference a SG3D field with X, Y and Z values. | | | | | |
| **Message** | SOUNDG does not reference a SG3D field. | | | | | |
| **Solution** | Amend coordinate type or values for SOUNDG. | | **Conformity** | Part 3 (5.1.4.1) | | |
| **Test Case No. 1** | Revised SG3D to SG2D for SOUNDG feature. | | | | | |
| **Location** | 32°33'34.53"S 61°11'40.74"E | **S57 Encoding** | SOUNDG |  | | |
| **FOID or VRID** | FE-000048 |  |  |  | | |
| **Screen Capture** |  | | | | | |
| **Expected Test Results** | 24: An error “SOUNDG does not reference a SG3D field.” must be triggered. | | | | | |
| **Secondary Errors** | 20: An error “Geometric primitive of this type is not permitted for this object class” must be triggered.  21: An error “orphan which is the edge is dose not point to end node” must be triggered. | | | | | |
|  | | | | | | |
| **Dataset Name** | AA400015 | **S‐58 Check** | 26a | | **Type** | C |
| **S-58 Description** | For each subfield where the value is not within the range defined in the S-57 format description. | | | | | |
| **Message** | Subfield value does not conform to S-57 format specification. | | | | | |
| **Solution** | Amend subfield value. | | **Conformity** | Part 3 (7.2.2.1) and (7.3) | | |
| **Test Case No. 1** | Revised RUIN subfield in VRID | | | | | |
| **Location** | - | **S57 Encoding** | - |  | | |
| **FOID or VRID** | VE-0000000016 |  |  |  | | |
| **Screen Capture** |  | | | | | |
| **Expected Test Results** | 26a: An error “Subfield value does not conform to S-57 format specification” should be triggered. | | | | | |
| **Secondary Errors** | None | | | | | |
|  | | | | | | |
| **Dataset Name** | AA400015 | **S‐58 Check** | 536 | | **Type** | C |
| **S-58 Description** | If a field without a repetition factor repeats. | | | | | |
| **Message** | Field without a repetition factor repeats. | | | | | |
| **Solution** | Remove repeating value. | | **Conformity** | 6.1.3 | | |
| **Test Case No. 1** | Repeated the DSPM field records. | | | | | |
| **Location** | - | **S57 Encoding** | - |  | | |
| **FOID or VRID** | - |  |  |  | | |
| **Screen Capture** |  | | | | | |
| **Expected Test Results** | 536: An error “Field without a repetition factor repeats” should be triggered. | | | | | |
| **Secondary Errors** | None | | | | | |
|  | | | | | | |
| **Dataset Name** | AA400015 | **S‐58 Check** | 540a | | **Type** | C |
| **S-58 Description** | If mandatory records, fields and subfields are not Present OR are Null where the “Null” value is not allowed. | | | | | |
| **Message** | Mandatory records, fields or subfields are not used. | | | | | |
| **Solution** | Add mandatory records/values. | | **Conformity** | 6.1.4, 6.3 and 6.4 | | |
| **Test Case No. 1** | Removed XCOO subfield | | | | | |
| **Location** | - | **S57 Encoding** | - |  | | |
| **FOID or VRID** | - |  |  |  | | |
| **Screen Capture** |  | | | | | |
| **Expected Test Results** | 540a: An error “Mandatory records, fields or subfields are not used” must be triggered. | | | | | |
| **Secondary Errors** | None | | | | | |
|  | | | | | | |
| **Dataset Name** | AA400015 | **S‐58 Check** | 540b | | **Type** | C |
| **S-58 Description** | If data set file contains prohibited records, fields or subfields. | | | | | |
| **Message** | Prohibited records, fields or subfields used. | | | | | |
| **Solution** | Remove prohibited records/values. | | **Conformity** | 6.3 and 6.4 | | |
| **Test Case No. 1** | Added text for prohibited subfield “PSDN”. | | | | | |
| **Location** | - | **S57 Encoding** | - |  | | |
| **FOID or VRID** | - |  |  |  | | |
| **Screen Capture** |  | | | | | |
| **Expected Test Results** | 540b: An error “Prohibited records, fields or subfields used” must be triggered. | | | | | |
| **Secondary Errors** | None | | | | | |

1. **Test Dataset: AA400016**

**S‐58 Recommended ENC Validation Checks covered in this section:**

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| --- | --- |
| **S‐58 Check** | **Description** |
| 74 | For each DEPCNT feature object which does not share an edge with a Group 1 feature object AND is WITHIN a DEPARE feature object of geometric primitive area where DRVAL1 and DRVAL2 are not Null AND VALDCO is Less than DRVAL1 OR Greater than DRVAL2. |
| 75 | For each DEPCNT feature object which does not share an edge with a Group 1 feature object AND is WITHIN a DRGARE feature object of geometric primitive area where  DRVAL1 is not Null AND VALDCO is Less than DRVAL1. |
| 77 | For each DEPCNT feature object which CROSSES another DEPCNT feature object. |
| 78 | For each feature object of geometric primitive area where its boundary crosses itself. |
| 500 | For each feature object where its geometry is not COVERED\_BY a M\_COVR meta object with CATCOV Equal to 1 (coverage available). |
| 544 | For each feature object that OVERLAPS, CROSSES OR is WITHIN an area of M\_COVR where CATCOV is Equal to 2 (no coverage available). |

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| **Dataset Name** | AA400016 | **S‐58 Check** | 74 | | **Type** | C |
| **S-58 Description** | For each DEPCNT feature object which does not share an edge with a Group 1 feature object AND is WITHIN a DEPARE feature object of geometric primitive area where DRVAL1 and DRVAL2 are  Not Null AND VALDCO is Less than DRVAL1 OR Greater than DRVAL2. | | | | | |
| **Message** | Floating DEPCNT within a DEPARE with VALDCO less than DRVAL1 or greater than DRVAL2. | | | | | |
| **Solution** | Amend floating contour VALDCO between DRVAL1 and  DRVAL2 of the underlying DEPARE. | | **Conformity** | Logical consistency. | | |
| **Test Case No. 1** | Floating DEPCNT features created where the values are not within the limits of the surrounding DEPARE. | | | | | |
| **Location** | 32°20'42.48"S 61°16'39.32"E  32°21'24.96"S 61°17'05.60"E | **S57 Encoding** | DEPCNT(L)  DEPARE (A) | VALDCO=0  VALDCO=50  DRVAL1=2  DRVAL2=10  DRVAL1=10  DRVAL2=20 | | |
| **FOID or VRID** | AA 3902032078 00012  AA 0296453920 00048  AA 2262385523 00024  AA 1117964304 00037 |  |  |  | | |
| **Screen Capture** |  | | | | | |
| **Expected Test Results** | 74: 2 errors “Floating DEPCNT within a DEPARE with VALDCO less than DRVAL1 or greater than DRVAL2” must be triggered. | | | | | |
| **Secondary Errors** | 43: A warning “depth contour without depth area” must be triggered.  1771: A warning “a depth contour should be bordered exactly two depth areas” must be triggered. | | | | | |
|  | | | | | | |
| **Dataset Name** | AA400016 | **S‐58 Check** | 75 | | **Type** | C |
| **S-58 Description** | For each DEPCNT feature object which does not share an edge with a Group 1 feature object AND is WITHIN a DRGARE feature object of geometric primitive area where DRVAL1 is not Null AND  VALDCO is Less than DRVAL1. | | | | | |
| **Message** | Floating DEPCNT within a DRGARE with VALDCO less than DRVAL1 of the DRGARE. | | | | | |
| **Solution** | Amend floating contour VALDCO to be greater than the  DRVAL1 of the underlying DRGARE or amend DRVAL1 of the DRGARE. | | **Conformity** | Logical consistency. | | |
| **Test Case No. 1** | Floating DEPCNT feature has been created where the value is not within the limits of the surrounding DRGARE. | | | | | |
| **Location** | 32°22'13.43"S 61°19'10.12"E | **S57 Encoding** | DEPCNT(L)  DRGARE(A) | VALDCO=2  DRVAL1=10 | | |
| **FOID or VRID** | AA 2550181471 00067  AA 2124720026 00046 |  |  |  | | |
| **Screen Capture** |  | | | | | |
| **Expected Test Results** | 75: An error “Floating DEPCNT WITHIN a DRGARE with VALDCO less than DRVAL1 of the DRGARE” must be triggered. | | | | | |
| **Secondary Errors** | 40: A warning “Can be merged into one object” must be triggered.  1771: A warning “a depth contour should be bordered exactly two depth areas” must be triggered. | | | | | |
|  | | | | | | |
| **Dataset Name** | AA400016 | **S‐58 Check** | 77 | | **Type** | C |
| **S-58 Description** | For each DEPCNT feature object which CROSSES another DEPCNT feature object. | | | | | |
| **Message** | DEPCNT objects cross. | | | | | |
| **Solution** | Amend DEPCNT objects so they do not cross. | | **Conformity** | Logical consistency | | |
| **Test Case No. 1** | DEPCNT (L) feature created which is crossing another depth contour line. | | | | | |
| **Location** | 32°23'23.51"S 61°20'10.86"E | **S57 Encoding** | DEPCNT (L) | VALDCO=2 | | |
| **FOID or VRID** | AA 0377235996 00060  AA 4268822036 00059 |  |  |  | | |
| **Screen Capture** |  | | | | | |
| **Expected Test Results** | 77: A 2 errors “DEPCNT feature object which CROSSES another DEPCNT feature object” must be triggered. | | | | | |
| **Secondary Errors** | 43: A warning “depth contour without depth area”.  1771: A warning “a depth contour does not correspond to depth area limit. | | | | | |
|  | | | | | | |
| **Dataset Name** | AA400016 | **S‐58 Check** | 78 | | **Type** | C |
| **S-58 Description** | For each feature object of geometric primitive area where its boundary crosses itself. | | | | | |
| **Message** | Boundary of an area object crosses itself. | | | | | |
| **Solution** | Amend boundary to remove part which crosses itself. | | **Conformity** | Logical consistency | | |
| **Test Case No. 1** | AIRARE (A) feature has been created which outer boundary crosses itself. | | | | | |
| **Location** | 32°21'51.97"S 61°20'48.76"E | **S57 Encoding** | AIRARE (A) |  | | |
| **FOID or VRID** | AA 2730892386 00065 |  |  |  | | |
| **Screen Capture** |  | | | | | |
| **Expected Test Results** | 78: An error “Boundary of an area object crosses itself” must be triggered. | | | | | |
| **Secondary Errors** | None | | | | | |
|  | | | | | | |
| **Dataset Name** | AA400016 | **S‐58 Check** | 500 | | **Type** | C |
| **S-58 Description** | For each feature object where its geometry is not COVERED\_BY a M\_COVR meta object with CATCOV Equal to 1 (coverage available). | | | | | |
| **Message** | Objects fall outside the coverage object. | | | | | |
| **Solution** | Ensure objects are not outside of the limits of the coverage area for the cell. | | **Conformity** | 2.2 | | |
| **Test Case No. 1** | PILBOP (P) feature has been created inside a no coverage area. | | | | | |
| **Location** | 32°24'10.99"S 61°21'04.69"E | **S57 Encoding** | PILBOP (P) | CATPIL=1  PILDST=Lowesmouth | | |
| **FOID or VRID** | AA 11150265776 00043 |  |  |  | | |
| **Screen Capture** |  | | | | | |
| **Expected Test Results** | 500: An error “Objects fall outside the coverage object” must be triggered. | | | | | |
| **Secondary Errors** | 544: An additional error “Object within an area of no coverage” must be triggered. | | | | | |
|  | | | | | | |
| **Dataset Name** | AA400016 | **S‐58 Check** | 544 | | **Type** | C |
| **S-58 Description** | For each feature object that OVERLAPS, CROSSES OR is WITHIN an area of M\_COVR where CATCOV is Equal to 2 (no coverage available). | | | | | |
| **Message** | Object within an area of no coverage. | | | | | |
| **Solution** | Remove object or amend coverage. | | **Conformity** | 2.2 | | |
| **Test Case No. 1** | DEPCNT (L) created inside no coverage area. | | | | | |
| **Location** | 32°24'13.16"S 61°20'38.54"E | **S57 Encoding** | DEPCNT(L)  M\_COVR (A) | VALDCO=10  CATCOV=2 | | |
| **FOID or VRID** | AA 1791496955 00055 |  |  |  | | |
| **Screen Capture** |  | | | | | |
| **Expected Test Results** | 544: An error “Object within an area of no coverage” must be triggered. | | | | | |
| **Secondary Errors** | 500: An additional error “Objects fall outside the coverage object” must be triggered. | | | | | |

1. **Test Dataset: AA500001**

**S‐58 Recommended ENC Validation Checks covered in this section:**

|  |  |
| --- | --- |
| **S‐58 Check** | **Description** |
| 13a | For each feature object of geometric primitive line which references multiple edges where the vector records are not referenced sequentially. |
| 13c | For each feature object of geometric primitive area where a polygon ring references multiple edges where the vector records are not referenced sequentially. |
| 13d | For each feature object of geometric primitive area where a polygon ring references multiple edges where the end node of a vector record is not identical to the beginning node of the following vector record. |
| 20a | For each feature object where a geometric primitive is not one of those permitted. |
| 20b | For each spatial record which is not referenced by a feature object. |
| 22 | For each edge where the End node is referenced before the beginning node. |
| 84a | For each node which is physically isolated AND is marked as connected. |
| 84b | For each node which is not physically isolated AND is marked as isolated. |

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| --- | --- | --- | --- | --- | --- | --- |
| **Dataset Name** | AA500001 | **S-58 Check** | 13a | | **Type** | C |
| **S-58 Description** | For each feature object of geometric primitive line which references multiple edges where the vector records are not referenced sequentially. | | | | | |
| **Message** | Edges are not referenced sequentially. | | | | | |
| **Solution** | Amend records to reference edges sequentially. | | **Conformity** | Part 3 (4.7.2) | | |
| **Test Case No. 1** | LNDELV feature line edges are not created sequentially. | | | | | |
| **Location** | 32°28'33.10"S 60°55'23.25"E | **S57 Encoding** | LNDELV (L) |  | | |
| **FOID or VRID** | AA 1521529362 00001  FE0000000186  VE0000000308  VE0000000311  VE0000000309 |  |  |  | | |
| **Screen Capture** |  | | | | | |
| **Expected Test Results** | 13a: An error “Edges are not referenced sequentially” must be triggered. | | | | | |
| **Secondary Errors** | 22: An additional error “Beginning and end nodes are not in the correct sequence” must be triggered. | | | | | |
|  | | | | | | |
| **Dataset Name** | AA500001 | **S-58 Check** | 13c | | **Type** | C |
| **S-58 Description** | For each feature object of geometric primitive area where a polygon ring references multiple edges where the vector records are not referenced sequentially. | | | | | |
| **Message** | Edges are not referenced sequentially. | | | | | |
| **Solution** | Amend records to reference edges sequentially. | | **Conformity** | Part 3 (4.7.2) and (4.7.3) | | |
| **Test Case No. 1** | BUAARE (A) feature created with multiple edges which are not referenced sequentially. | | | | | |
| **Location** | 32°28'16.55"S 60°55'16.70"E | **S57 Encoding** | BUAARE (A) |  | | |
| **FOID or VRID** | AA 1516275166 00001 (FE0000000181)  VE0000000287  VE0000000290  VE0000000289  VE0000000286  VE0000000288 |  |  |  | | |
| **Screen Capture** |  | | | | | |
| **Expected Test Results** | 13c: An error “Edges are not referenced sequentially for polygon” must be triggered. | | | | | |
| **Secondary Errors** | 15: An additional error “First and last edge of an area boundary do not meet at a common  connected node” must be triggered. | | | | | |
|  | | | | | | |
| **Dataset Name** | AA500001 | **S-58 Check** | 13d | | **Type** | C |
| **S-58 Description** | For each feature object of geometric primitive area where a polygon ring references multiple edges where the end node of a vector record is not identical to the beginning node of the following vector record. | | | | | |
| **Message** | Sequential edges do not have the same end and beginning nodes. | | | | | |
| **Solution** | Ensure end and beginning nodes of sequential edges match. | | **Conformity** | Part 3 (4.7.2) and (4.7.3) | | |
| **Test Case No. 1** | LNDRGN (A) feature created with sequential edges and without same end, beginning nodes. | | | | | |
| **Location** | 32°28'09.42"S 60°54'53.10"E | **S57 Encoding** | LNDRGN (A) |  | | |
| **FOID or VRID** | AA 1516275371 00001 (FE0000000182)  VE0000000303  VE0000000304 |  |  |  | | |
| **Screen Capture** |  | | | | | |
| **Expected Test Results** | 13d: An error “Sequential edges do not have the same end and beginning nodes for polygon” must be triggered. | | | | | |
| **Secondary Errors** | 15: An additional error “First and last edge of an area boundary do not meet at a common  connected node” must be triggered. | | | | | |
|  | | | | | | |
| **Dataset Name** | AA500001 | **S-58 Check** | 20a | | **Type** | C |
| **S-58 Description** | For each feature object where a geometric primitive is not one of those permitted. | | | | | |
| **Message** | Geometric primitive of this type is not permitted for this object class. | | | | | |
| **Solution** | Use alternative geometric primitive or alternative object class as required. | | **Conformity** | Part 3 (4.2.1), Appendix B.1 (3.3) and Supplement No.3 Ch.3 (3.3) | | |
| **Test Case No. 1** | These features are created as isolated node. | | | | | |
| **Location** | 32°28'27.75"S 60°54'27.75"E  32°28'32.84"S 60°54'26.50"E  32°28'22.21"S 60°54'59.94"E | **S57 Encoding** | PONTON (P)  ACHARE (L)  COALNE (A) | - | | |
| **FOID or VRID** | AA 1521608778 00001  AA 1521609412 00001  AA 1521609839 00001 |  |  |  | | |
| **Screen Capture** |  | | | | | |
| **Expected Test Results** | 20a: An error “Geometric primitive of this type is not permitted for this object class” must be triggered. | | | | | |
| **Secondary Errors** | None | | | | | |
|  | | | | | | |
| **Dataset Name** | AA500001 | **S-58 Check** | 20b | | **Type** | C |
| **S-58 Description** | For each spatial record which is not referenced by a feature object. | | | | | |
| **Message** | Orphaned geometry. | | | | | |
| **Solution** | Remove orphaned geometry. | | **Conformity** | Logical consistency and Part 2 (1) | | |
| **Test Case No. 1** | Orphan geometry line created. | | | | | |
| **Location** | 32°28'47.53"S 60°54'44.22"E | **S57 Encoding** |  |  | | |
| **FOID or VRID** | VE0000000011 |  |  |  | | |
| **Screen Capture** |  | | | | | |
| **Expected Test Results** | 20b: An error “Orphaned geometry” should be triggered. | | | | | |
| **Secondary Errors** | 21: An additional error “Orphan edge” must be triggered. | | | | | |
|  | | | | | | |
| **Dataset Name** | AA500001 | **S-58 Check** | 22 | | **Type** | C |
| **S-58 Description** | For each edge where the End node is referenced before the beginning node. | | | | | |
| **Message** | Beginning and end nodes are not in the correct sequence. | | | | | |
| **Solution** | Amend edge to reference beginning node before end node. | | **Conformity** | Part 3 (5.1.3.2) | | |
| **Test Case No. 1** | SLOTOP line feature created with beginning and end nodes different sequence. | | | | | |
| **Location** | 32°28'15.84"S 60°54'13.56"E | **S57 Encoding** | SLOTOP (L) | - | | |
| **FOID or VRID** | AA 1521529970 00001  (FE0000000188) |  |  |  | | |
| **Screen Capture** |  | | | | | |
| **Expected Test Results** | 22: An error “Beginning and end nodes are not in the correct sequence” must be triggered. | | | | | |
| **Secondary Errors** | 25: An additional error “Edge does not point to a connected node” must be triggered. | | | | | |
|  | | | | | | |
| **Dataset Name** | AA500001 | **S-58 Check** | 84a | | **Type** | C |
| **S-58 Description** | For each node which is physically isolated AND is marked as connected. | | | | | |
| **Message** | Isolated node marked as connected. | | | | | |
| **Solution** | Amend to isolated node. | | **Conformity** | Part 3 (5.1.1) | | |
| **Test Case No. 1** | Isolated node created as Connected node. | | | | | |
| **Location** | 32°28'07.40"S 60°54'32.76"E | **S57 Encoding** |  |  | | |
| **FOID or VRID** | VC0000000289 |  |  |  | | |
| **Screen Capture** |  | | | | | |
| **Expected Test Results** | 84a: An error “Isolated node marked as connected” must be triggered. | | | | | |
| **Secondary Errors** | 21: An additional error “Orphan node” must be triggered. | | | | | |
|  | | | | | | |
| **Dataset Name** | AA500001 | **S-58 Check** | 84b | | **Type** | C |
| **S-58 Description** | For each node which is not physically isolated AND is marked as isolated. | | | | | |
| **Message** | Connected node marked as isolated. | | | | | |
| **Solution** | Amend to connected node. | | **Conformity** | Part 3 (5.1.1) | | |
| **Test Case No. 1** | Created an isolated node from connected node for SLCONS feature. | | | | | |
| **Location** | 32°28'25.30"S 60°54'51.76"E | **S57 Encoding** | SLCONS (L) |  | | |
| **FOID or VRID** | VI0000000319 |  |  |  | | |
| **Screen Capture** |  | | | | | |
| **Expected Test Results** | 84b: An error “Connected node marked as isolated” must be triggered. | | | | | |
| **Secondary Errors** | 25: An additional error “Edge does not point to a connected node” must be triggered.  28: An additional error “Wrong number of records in DSSI” must be triggered. | | | | | |

1. **Test Dataset: AA500002**

**S‐58 Recommended ENC Validation Checks covered in this section:**

|  |  |
| --- | --- |
| **S‐58 Check** | **Description** |
| 5 | For each RCID which is Less than 1 OR Greater than 232 -2 (4294967294). |
| 575 | If the DSTR subfield of the DSSI field is Not equal to 2 (chain node). |
| 1523b | If the data set file name extension is Equal to “.000” AND the ISDT subfield of the DSID field is Less than the value of the UADT subfield. |
| 1549 | If the value of CSCL subfield of the DSPM field is Null. |

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| **Dataset Name** | AA500002 | **S-58 Check** | 5 | | **Type** | C |
| **S-58 Description** | For each RCID which is Less than 1 OR Greater than 232 -2 (4294967294). | | | | | |
| **Message** | RCID is out of range. | | | | | |
| **Solution** | Amend RCID value. | | **Conformity** | Part 3 (2.2.2) | | |
| **Test Case No. 1** | RCID value has been changed according to the error description. | | | | | |
| **Location** | - | **S57 Encoding** | - |  | | |
| **FOID or VRID** | - |  |  |  | | |
| **Screen Capture** |  | | | | | |
| **Expected Test Results** | 5: An error “RCID is out of range” must be triggered. | | | | | |
| **Secondary Errors** | None | | | | | |
|  | | | | | | |
| **Dataset Name** | AA500002 | **S-58 Check** | 575 | | **Type** | C |
| **S-58 Description** | If the DSTR subfield of the DSSI field is Not equal to 2 (chain node). | | | | | |
| **Message** | DSTR does not equal 2. | | | | | |
| **Solution** | Set the DSTR subfield to 2 (chain node). | | **Conformity** | 6.3.2.2 and 6.4.2.2 | | |
| **Test Case No. 1** | Revised DSTR subfield to 4 (Full Topology). | | | | | |
| **Location** | DSSI Parameters | **S57 Encoding** | - |  | | |
| **FOID or VRID** | - |  |  |  | | |
| **Screen Capture** |  | | | | | |
| **Expected Test Results** | 575: An error “Invalid value 4 for subfield DSTR (expected 2)” must be triggered. | | | | | |
| **Secondary Errors** | None | | | | | |
|  | | | | | | |
| **Dataset Name** | AA500002 | **S-58 Check** | 1523b | | **Type** | C |
| **S-58 Description** | If the data set file name extension is Equal to “.000” AND the ISDT subfield of the DSID field is Less than the value of the UADT subfield. | | | | | |
| **Message** | The ISDT of a base cell file precedes the UADT. | | | | | |
| **Solution** | Amend UADT or ISDT accordingly. | | **Conformity** | 2.2.2 and Appendix B.1 (5.7) | | |
| **Test Case No. 1** | Revised UADT field greater than ISDT field. | | | | | |
| **Location** | DSID Parameters | **S57 Encoding** | - |  | | |
| **FOID or VRID** | - |  |  |  | | |
| **Screen Capture** |  | | | | | |
| **Expected Test Results** | 1523b: An error “The ISDT of a base cell file precedes the UADT” must be triggered. | | | | | |
| **Secondary Errors** | None | | | | | |
|  | | | | | | |
| **Dataset Name** | AA500002 | **S-58 Check** | 1549 | | **Type** | C |
| **S-58 Description** | If the value of CSCL subfield of the DSPM field is Null. | | | | | |
| **Message** | CSCL is not populated with a value. | | | | | |
| **Solution** | Populate CSCL with an appropriate value. | | **Conformity** | 2.2.6 | | |
| **Test Case No. 1** | Revised CSCL value as null. | | | | | |
| **Location** | DSPM Parameters | **S57 Encoding** | - |  | | |
| **FOID or VRID** | - |  |  |  | | |
| **Screen Capture** |  | | | | | |
| **Expected Test Results** | 1549: An error “CSCL is not populated with a value” must be triggered. | | | | | |
| **Secondary Errors** | None | | | | | |

1. **Test Dataset: AA500003**

**S‐58 Recommended ENC Validation Checks covered in this section:**

|  |  |
| --- | --- |
| **S‐58 Check** | **Description** |
| 27 | For each subfield which is not formatted in accordance with S-57. |
| 533 | If the UADT subfield of the DSID field is used in an ER file. |
| 560a | For all feature objects with the same FOID where the object class and attribute values are not identical. |
| 560b | For all feature objects with the same FOID where the geometric primitives are Point OR are not of the same geometric primitive. |
| 1522b | If the file extension is not “.000” AND the UADT subfield of the DSID field is notNull. |

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| **Dataset Name** | AA500003 | **S-58 Check** | 27 | | **Type** | C |
| **S-58 Description** | For each subfield which is not formatted in accordance with S-57. | | | | | |
| **Message** | Subfield not formatted in accordance with S-57. | | | | | |
| **Solution** | Amend formatting of subfield value. | | **Conformity** | Part 3 (7.2.2.2) | | |
| **Test Case No. 1** | Added unusual value in subfield of DSID. | | | | | |
| **Location** | - | **S57 Encoding** | - |  | | |
| **FOID or VRID** | - |  |  |  | | |
| **Screen Capture** |  | | | | | |
| **Expected Test Results** | 27: An error “Subfield not formatted in accordance with S-57” must be triggered. | | | | | |
| **Secondary Errors** | None | | | | | |
|  | | | | | | |
| **Dataset Name** | AA500003 | **S-58 Check** | 533 | | **Type** | C |
| **S-58 Description** | If the UADT subfield of the DSID field is used in an ER file. | | | | | |
| **Message** | DSID-UADT subfield populated in an ER file. | | | | | |
| **Solution** | Remove value of DSID-UADT subfield. | | **Conformity** | 5.7 | | |
| **Test Case No. 1** | Added UADT value in update file (AA500003.001). | | | | | |
| **Location** | DSID Parameters | **S57 Encoding** | - |  | | |
| **FOID or VRID** | - |  |  |  | | |
| **Screen Capture** |  | | | | | |
| **Expected Test Results** | 533: An error “DSID-UADT subfield populated in an ER file” must be triggered. | | | | | |
| **Secondary Errors** | 1522b: An additional error “UADT is notNull for an update” must be triggered. | | | | | |
|  | | | | | | |
| **Dataset Name** | AA500003 | **S-58 Check** | 560a | | **Type** | C |
| **S-58 Description** | For all feature objects with the same FOID where the object class and attribute values are not identical. | | | | | |
| **Message** | Objects with the same FOID do not have the same feature encoding. | | | | | |
| **Solution** | Ensure objects with the same FOID have the same object class and attribute values. | | **Conformity** | 3.1 | | |
| **Test Case No. 1** | Assigned same FOIDs for two same objects. | | | | | |
| **Location** | 32°30'24.57"S 60°55'24.67"E  32°30'27.49"S 60°55'20.85"E | **S57 Encoding** | DEPCNT (L) | VALDCO= 2  VALDCO= 5 | | |
| **FOID or VRID** | AA 0001214732 00001  AA 0001214732 00001 |  |  |  | | |
| **Screen Capture** |  | | | | | |
| **Expected Test Results** | 560a: An error “Objects with the same FOID do not have the same feature encoding” must be triggered. | | | | | |
| **Secondary Errors** | None | | | | | |
|  | | | | | | |
| **Dataset Name** | AA500003 | **S-58 Check** | 560b | | **Type** | C |
| **S-58 Description** | For all feature objects with the same FOID where the geometric primitives are Point OR are not of the same geometric primitive. | | | | | |
| **Message** | Objects with the same FOID are of geometric primitive point or have different geometric primitives. | | | | | |
| **Solution** | Ensure point objects do not have the same FOID and that line and area objects which share FOIDs have the same geometric primitive. | | **Conformity** | 3.1 | | |
| **Test Case No. 1** | BUISGL (P & A) objects created with same FOID. | | | | | |
| **Location** | 32°31'20.04"S 60°54'04.09"E  32°31'15.51"S 60°54'02.85"E | **S57 Encoding** | BUISGL (A)  BUISGL (P) |  | | |
| **FOID or VRID** | AA 0365234185 12345  AA 0365234185 12345 |  |  |  | | |
| **Screen Capture** |  | | | | | |
| **Expected Test Results** | 560b: An error “Objects with the same FOID are of geometric primitive point or have different geometric primitives” must be triggered. | | | | | |
| **Secondary Errors** | None | | | | | |
|  | | | | | | |
| **Dataset Name** | AA500003 | **S-58 Check** | 1522b | | **Type** | C |
| **S-58 Description** | If the file extension is not “.000” AND the UADT subfield of the DSID field is notNull. | | | | | |
| **Message** | UADT is notNull for an update. | | | | | |
| **Solution** | Encode UADT as missing subfield value. | | **Conformity** | 2.2.2 and Appendix B.1 (5.7 and 6.1.4) | | |
| **Test Case No. 1** | UADT value assigned in update file (AA500003.001). | | | | | |
| **Location** | DSID Parameters | **S57 Encoding** | - |  | | |
| **FOID or VRID** | - |  |  |  | | |
| **Screen Capture** |  | | | | | |
| **Expected Test Results** | 1522b: An error “UADT is notNull for an update” should be triggered. | | | | | |
| **Secondary Errors** | 533: An additional error “DSID-UADT subfield populated in an ER file” must be triggered. | | | | | |

1. **Test Dataset: AA500004**

**S‐58 Recommended ENC Validation Checks covered in this section:**

|  |  |
| --- | --- |
| **S‐58 Check** | **Description** |
| 3 | For each record where the record identifier NAME (concatenation of the RCNM & RCID subfields) is not unique within the file. |
| 23 | For each coordinate which is not a SG2D or SG3D field. |
| 86 | For each feature object of geometric primitive point which references more than one vector record. |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Dataset Name** | AA500004 | **S‐58 Check** | 3 | | **Type** | C |
| **S-58 Description** | For each record where the record identifier NAME (concatenation of the RCNM & RCID subfields) is  not unique within the file. | | | | | |
| **Message** | Record identifier NAME is not unique. | | | | | |
| **Solution** | Amend Record identifier NAME to be unique. | | **Conformity** | Part 3 (2.2) | | |
| **Test Case No. 1** | Captured BUISGL (L) and (P) features and revised record identifier NAME is not unique according to S-58 description. | | | | | |
| **Location** | 32°30'46.26"S 60°57'55.65"E  32°30'46.33"S 60°57'44.74"E | **S57 Encoding** | BUISGL(L,P) | FUNCTN= 20  FUNCTN= 2 | | |
| **FOID or VRID** | AA 0000000647 00001  AA 0000000648 00001 |  |  |  | | |
| **Screen Capture** |  | | | | | |
| **Expected Test Results** | 3: An error “record identifier NAME is not unique” must be triggered. | | | | | |
| **Secondary Errors** | None | | | | | |
|  | | | | | | |
| **Dataset Name** | AA500004 | **S‐58 Check** | 23 | | **Type** | C |
| **S-58 Description** | For each coordinate which is not a SG2D or SG3D field. | | | | | |
| **Message** | Coordinate is not a SG2D or SG3D field. | | | | | |
| **Solution** | Amend coordinate to valid field. | | **Conformity** | Part 3 (5.1.4) | | |
| **Test Case No. 1** | Captured BUISGL (P) with coordinate is not a SG2D and SG3D field according to S-58 description. | | | | | |
| **Location** | 32°30'46.33"S 60°57'55.59"E | **S57 Encoding** | BUISGL (P) | FUNCTN= 2 | | |
| **FOID or VRID** | AA 0000000647 00001 |  |  |  | | |
| **Screen Capture** |  | | | | | |
| **Expected Test Results** | 23: An error “coordinate is not a SG2D or SG3D field’ must be triggered. | | | | | |
| **Secondary Errors** | None | | | | | |
|  | | | | | | |
| **Dataset Name** | AA500004 | **S‐58 Check** | 86 | | **Type** | C |
| **S-58 Description** | For each feature object of geometric primitive point which references more than one vector record. | | | | | |
| **Message** | Point feature references more than one vector record. | | | | | |
| **Solution** | Remove references to additional vector records. | | **Conformity** | Part 3 ( 4.7.1 ) | | |
| **Test Case No. 1** | Captured UWTROC features which has references more than one vector record. | | | | | |
| **Location** | 32°30'48.92"S 60°57'13.09"E  32°30'46.33"S 60°57'55.61"E | **S57 Encoding** | UWTROC (P) | EXPSOU=2  NATSUR=9  QUASOU=2  VALSOU=-1  WATLEV=4  FUNCTN= 2 | | |
| **FOID or VRID** | AA 0000000778 00001 |  |  |  | | |
| **Screen Capture** |  | | | | | |
| **Expected Test Results** | 86: An error “point feature references more than one vector record” must be triggered. | | | | | |
| **Secondary Errors** | 21: An additional error “orphan which is the edge is dose not point to end node” must be triggered. | | | | | |

1. **Test Dataset: AA500005**

**S‐58 Recommended ENC Validation Checks covered in this section:**

|  |  |
| --- | --- |
| **S‐58 Check** | **Description** |
| 18a | For each feature object of geometric primitive area where the number of exterior boundaries is Not equal to 1. |
| 18b | For each feature object of geometric primitive area where the exterior boundary is not referenced first. |
| 18c | For each feature object of geometric primitive area with one or more interior boundaries where any interior boundary does not have USAG set to 2 (interior boundary). |
| 31 | For each edge where SG2D coordinates are identical to the beginning or end node coordinates. |
| 89a | For each master object which references the same slave more than once. |

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| **Dataset Name** | AA500005 | **S‐58 Check** | 18a | | **Type** | C |
| **S-58 Description** | For each feature object of geometric primitive area where the number of exterior boundaries is Not equal to 1. | | | | | |
| **Message** | Area object without an exterior boundary or with several exterior boundaries. | | | | | |
| **Solution** | Amend geometry so that area object has one exterior boundary. | | **Conformity** | Part 3 (4.7.3.2)  and (4.7.3.3) | | |
| **Test Case No. 1** | Captured ACHARE (A) feature with several exterior boundaries according to S-58 description. | | | | | |
| **Location** | 32°31'14.25"S 60°59'08.84"E | **S57 Encoding** | ACHARE (A) | - | | |
| **FOID or VRID** | AA 1522649022 00001 |  |  |  | | |
| **Screen Capture** |  | | | | | |
| **Expected Test Results** | 18a: An error “Area object with several exterior boundaries” must be triggered. | | | | | |
| **Secondary Errors** | 12: An error “object has no geometry” must be triggered.  21: An error “orphan which is the edge is dose not point to end node” must be triggered. | | | | | |
| **Test Case No. 2** | Captured CTNARE (A) feature without an exterior boundary according to S-58 description. | | | | | |
| **Location** | 32°30'41.46"S 60°59'28.50"E | **S57 Encoding** | CTNARE (A) | - | | |
| **FOID or VRID** | AA 1522649058 00001 |  |  |  | | |
| **Screen Capture** |  | | | | | |
| **Expected Test Results** | 18a: An error “Area object without an exterior boundary” must be triggered. | | | | | |
| **Secondary Errors** | 12: An error “object has no geometry” must be triggered.  21: An error “orphan which is the edge is dose not point to end node” must be triggered. | | | | | |
|  | | | | | | |
| **Dataset Name** | AA500005 | **S‐58 Check** | 18b | | **Type** | C |
| **S-58 Description** | For each feature object of geometric primitive area where the exterior boundary is not referenced  first. | | | | | |
| **Message** | Area object with exterior boundary which is not referenced first. | | | | | |
| **Solution** | Amend geometry so that the exterior boundary is referenced first. | | **Conformity** | Part 3 (4.7.3.1),  (4.7.3.2) and  (4.7.3.3) | | |
| **Test Case No. 1** | Captured ACHBRT (A) feature where the exterior boundary is not referenced first according to S-58 description. | | | | | |
| **Location** | 32°31'08.34"S 60°59'47.52"E | **S57 Encoding** | ACHBRT (A) | - | | |
| **FOID or VRID** | AA 1522649040 00001 |  |  |  | | |
| **Screen Capture** |  | | | | | |
| **Expected Test Results** | 18b An error “Area object with exterior boundary which is not referenced first” must be triggered. | | | | | |
| **Secondary Errors** | 12: An error “object has no geometry” must be triggered.  21: An error “orphan which is the edge is dose not point to end node” must be triggered. | | | | | |
|  | | | | | | |
| **Dataset Name** | AA500005 | **S‐58 Check** | 18c | | **Type** | C |
| **S-58 Description** | For each feature object of geometric primitive area with one or more interior boundaries where any interior boundary does not have USAG set to 2 (interior boundary). | | | | | |
| **Message** | Interior boundary has invalid USAG value. | | | | | |
| **Solution** | Amend edge to USAG = 2 (interior boundary). | | **Conformity** | Part 3 (4.7.3.2)  and (4.7.3.3) | | |
| **Test Case No. 1** | Captured RESARE (A) feature with more than one interior boundary without USAG=2. | | | | | |
| **Location** | 32°31'41.86"S 60°59'24.97"E | **S57 Encoding** | RESARE (A) | CATREA= unknown  RESTRN=1 | | |
| **FOID or VRID** | AA 1522650247 00001 |  |  |  | | |
| **Screen Capture** |  | | | | | |
| **Expected Test Results** | 18c: An error “Interior boundary has invalid USAG value” must be triggered. | | | | | |
| **Secondary Errors** | 88: An error “illegal value of ORNT or USAG in OBPT” must be triggered.  21: An error “orphan which is the edge is dose not point to end node” must be triggered. | | | | | |
|  | | | | | | |
| **Dataset Name** | AA500005 | **S‐58 Check** | 31 | | **Type** | C |
| **S-58 Description** | For each edge where SG2D coordinates are identical to the beginning or end node coordinates. | | | | | |
| **Message** | Edge where beginning or end node coordinates are the same as the SG2D coordinates. | | | | | |
| **Solution** | Amend SG2D coordinates to differ from beginning and  end node coordinates. | | **Conformity** | Part 3 (7.7.1.6) | | |
| **Test Case No. 1** | Captured SLCONS (L) feature | | | | | |
| **Location** | 32°30'31.00"S 60°58'48.09"E | **S57 Encoding** | SLCONS (L) | CATSLC= 1  WATLEV=2 | | |
| **FOID or VRID** | AA 1522733964 00001 |  |  |  | | |
| **Screen Capture** |  | | | | | |
| **Expected Test Results** | 31: An error “Edge where beginning or end node coordinates are the same as the SG2D coordinates” must be triggered. | | | | | |
| **Secondary Errors** | None | | | | | |
|  | | | | | | |
| **Dataset Name** | AA500005 | **S‐58 Check** | 89a | | **Type** | C |
| **S-58 Description** | For each master object which references the same slave more than once. | | | | | |
| **Message** | Master object references the same slave more than once. | | | | | |
| **Solution** | Remove duplicate reference to slave object. | | **Conformity** | Part 3 (6.3);  Appendix B.1  (3.9) and  Appendix B.1,  Annex A (12.1.2) | | |
| **Test Case No. 1** | Captured one master object and two slave objects BCNSPP and LIGHTS | | | | | |
| **Location** | 32°30'29.49"S 60°58'21.91"E | **S57 Encoding** | BCNSPP  LIGHTS | BCNSHP=1  CATSPM=1  COLOUR=1  LITCHR=2  COLOUR=5  SIGGRP=(1)  SIGPER=4 | | |
| **FOID or VRID** | AA 1522734040 00001  AA 1522734208 00001  AA 1522734256 00001 |  |  |  | | |
| **Screen Capture** |  | | | | | |
| **Expected Test Results** | 89a: An error “Master object references the same slave more than once” must be triggered. | | | | | |
| **Secondary Errors** | 67a: An error “Duplicate object exists” must be triggered.  1722: An error “Object hierarchy can be made out of structure” must be triggered. | | | | | |

1. **Test Dataset: AA500006**

**S‐58 Recommended ENC Validation Checks covered in this section:**

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| **S‐58 Check** | **Description** |
| 36a | For each feature or vector update record which is DELETE AND contains further fields. |
| 36b | For each feature or vector update record which is MODIFY OR INSERT and contains no further fields. |

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| **Dataset Name** | AA500006 | **S‐58 Check** | 36a | | **Type** | C |
| **S-58 Description** | For each feature or vector update record which is DELETE AND contains further fields. | | | | | |
| **Message** | DELETE update contains additional fields. | | | | | |
| **Solution** | Remove additional fields from update record. | | **Conformity** | Part 3 (8.4.2.2) and (8.4.3.2) | | |
| **Test Case No. 1** | Deleted additional fields in vector record in update (AA500006.001) file. | | | | | |
| **Location** | - | **S57 Encoding** | - | - | | |
| **FOID or VRID** | VE 0000000030 |  |  |  | | |
| **Screen Capture** |  | | | | | |
| **Expected Test Results** | 36a: An error “DELETE update contains additional fields” must be triggered. | | | | | |
| **Secondary Errors** | None | | | | | |
| **Test Case No. 2** | Inserted additional fields in feature record in update (AA500006.001) file. | | | | | |
| **Location** | 32°29'47.43"S 60°59'11.25"E | **S57 Encoding** | SLCONS | CATSLC=4  WATELC=3 | | |
| **FOID or VRID** | FE 000048  (AA 0606243655 00060) |  |  |  | | |
| **Screen Capture** |  | | | | | |
| **Expected Test Results** | 36a: An error “DELETE update contains additional fields” must be triggered. | | | | | |
| **Secondary Errors** | None | | | | | |
|  | | | | | | |
| **Dataset Name** | AA500006 | **S‐58 Check** | 36b | | **Type** | C |
| **S-58 Description** | For each feature or vector update record which is MODIFY OR INSERT and contains no further fields. | | | | | |
| **Message** | MODIFY or INSERT update does not contain additional fields. | | | | | |
| **Solution** | Add additional fields to update record. | | **Conformity** | Part 3 (8.4.2.2) and (8.4.3.2) | | |
| **Test Case No. 1** | A modify vector record only contains a VRID record with no further fields. | | | | | |
| **Location** | - | **S57 Encoding** | - | - | | |
| **FOID or VRID** | VI 0000000100 |  |  |  | | |
| **Screen Capture** |  | | | | | |
| **Expected Test Results** | 36b: An error “MODIFY or INSERT update does not contain additional fields” must be triggered. | | | | | |
| **Secondary Errors** | None | | | | | |
| **Test Case No. 2** | An insert vector record only contains a VRID record with no further fields. | | | | | |
| **Location** | 32°29'35.46"S : 60°59'39.15"E | **S57 Encoding** | SBDARE (P) | NATSUR=4 | | |
| **FOID or VRID** | VI 0000000031  (AA 2214857185 00065) |  |  |  | | |
| **Screen Capture** |  | | | | | |
| **Expected Test Results** | 36b: An error “MODIFY or INSERT update does not contain additional fields” must be triggered. | | | | | |
| **Secondary Errors** | None | | | | | |
| **Test Case No. 3** | An insert feature record only contains a FOID record with no further fields. | | | | | |
| **Location** | - | **S57 Encoding** | SOUNDG | - | | |
| **FOID or VRID** | FE 000100 |  |  |  | | |
| **Screen Capture** |  | | | | | |
| **Expected Test Results** | 36b: An error “MODIFY or INSERT update does not contain additional fields” must be triggered. | | | | | |
| **Secondary Errors** | None | | | | | |
| **Test Case No. 4** | A modify feature record only contains a FOID record with no further fields. | | | | | |
| **Location** | 32°29'10.51"S 60°59'36.50"E | **S57 Encoding** | SOUNDG | - | | |
| **FOID or VRID** | FE000057 |  |  |  | | |
| **Screen Capture** |  | | | | | |
| **Expected Test Results** | 36b: An error “MODIFY or INSERT update does not contain additional fields” must be triggered. | | | | | |
| **Secondary Errors** | None | | | | | |

1. **Test Dataset: AA500007**

**S‐58 Recommended ENC Validation Checks covered in this section:**

|  |  |
| --- | --- |
| **S‐58 Check** | **Description** |
| 29 | For each of the following: FFPC-NFPT, FSPC-NSPT, SGCC-CCNC, and VRPC-NVPT subfields where the value is Not equal to the number of records/pointers. |
| 32 | For each record update which does not refer to a valid record NAME. |
| 33 | For each attribute update which does not refer to a valid record NAME and attribute label/code. |

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| **Dataset Name** | AA500007 | **S‐58 Check** | 29 | | **Type** | C |
| **S-58 Description** | For each of the following: FFPC-NFPT, FSPC-NSPT, SGCC-CCNC, and VRPC-NVPT subfields where the value is Not equal to the number of records/pointers. | | | | | |
| **Message** | Invalid number of records/pointers in the following FFPC-NFPT, FSPC-NSPT, SGCC-CCNC or  VRPC-NVPT. | | | | | |
| **Solution** | Amend subfield to equal the number of records/pointers. | | **Conformity** | Part 3 (7.6.5)  (7.6.7), (7.7.1.5)  and (7.7.1.3) | | |
| **Test Case No. 1** | FFPC-NFPT has been set to “2” instead of “1” in update AA500007.001. | | | | | |
| **Location** | - | **S57 Encoding** | LNDMRK | - | | |
| **FOID or VRID** | FE 0000000045 |  |  |  | | |
| **Screen Capture** |  | | | | | |
| **Expected Test Results** | 29: An error “Invalid number of records/pointers in the following FFPC-NFPT” must be triggered. | | | | | |
| **Secondary Errors** | 555: An error “Unexpected subfield FOID. Subfield is not allowed here” must be triggered. | | | | | |
| **Test Case No. 2** | FSPC-NFPT has been set to “3” instead of “2” in update AA500007.001. | | | | | |
| **Location** | - | **S57 Encoding** | DEPARE | -2\_0 | | |
| **FOID or VRID** | FE 0000000002 |  |  |  | | |
| **Screen Capture** |  | | | | | |
| **Expected Test Results** | 29: An error “Invalid number of records/pointers in the following FSPC-NSPT” must be triggered. | | | | | |
| **Secondary Errors** | 555: An error “Unexpected subfield FOID. Subfield is not allowed here” must be triggered. | | | | | |
| **Test Case No. 3** | VRPC-NVPT has been set to “2” instead of “1” in update AA500007.001. | | | | | |
| **Location** | - | **S57 Encoding** | COALNE (L) |  | | |
| **FOID or VRID** | VE 0000000026 |  |  |  | | |
| **Screen Capture** |  | | | | | |
| **Expected Test Results** | 29: An error “Invalid number of records/pointers in the following VRPC-NVPT” must be triggered. | | | | | |
| **Secondary Errors** | 555: An error “Unexpected subfield FOID. Subfield is not allowed here” must be triggered. | | | | | |
| **Test Case No. 4** | SGCC-CNCC has been set to “11” instead of “10” in update AA500007.001. | | | | | |
| **Location** | - | **S57 Encoding** | COALNE (L) |  | | |
| **FOID or VRID** | VE 0000000026 |  |  |  | | |
| **Screen Capture** |  | | | | | |
| **Expected Test Results** | 29: An error “Invalid number of records/pointers in the following SGCC-CCNC” must be triggered. | | | | | |
| **Secondary Errors** | 555: An error “Unexpected subfield FOID. Subfield is not allowed here” must be triggered. | | | | | |
|  | | | | | | |
| **Dataset Name** | AA500007 | **S‐58 Check** | 32 | | **Type** | C |
| **S-58 Description** | For each record update which does not refer to a valid record NAME. | | | | | |
| **Message** | Record update does not refer to a valid record NAME. | | | | | |
| **Solution** | Amend record update to refer to a valid record NAME. | | **Conformity** | Part 3 (8.3.2) | | |
| **Test Case No. 1** | The FRID.RCNM for ISO record <0001><22> in the update file AA500007.001 is invalid. | | | | | |
| **Location** | - | **S57 Encoding** | - | - | | |
| **FOID or VRID** | AA 3093866859 |  |  |  | | |
| **Screen Capture** |  | | | | | |
| **Expected Test Results** | 32: An error “Record update does not refer to a valid record NAME” must be triggered. | | | | | |
| **Secondary Errors** | None | | | | | |
|  | | | | | | |
| **Dataset Name** | AA500007 | **S‐58 Check** | 33 | | **Type** | C |
| **S-58 Description** | For each attribute update which does not refer to a valid record NAME and attribute label/code. | | | | | |
| **Message** | Attribute update does not refer to valid record NAME and attribute label/code. | | | | | |
| **Solution** | Amend attribute update to refer to valid values. | | **Conformity** | Part 3 (8.3.3) | | |
| **Test Case No. 1** | The update record <0001><25> contains an invalid ATTF.ATTL value. | | | | | |
| **Location** | - | **S57 Encoding** | - | - | | |
| **FOID or VRID** | AA 3007887502 00006 |  |  |  | | |
| **Screen Capture** |  | | | | | |
| **Expected Test Results** | 33: An error “Attribute update does not refer to valid record NAME and attribute label/code” must be triggered. | | | | | |
| **Secondary Errors** | None | | | | | |

1. **Test Dataset: AA500008**

**S‐58 Recommended ENC Validation Checks covered in this section:**

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| **S‐58 Check** | **Description** |
| 555 | If the order of the data in a base or update file is not correct. |

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| **Dataset Name** | AA500008 | **S‐58 Check** | 555 | | **Type** | C |
| **S-58 Description** | If the order of the data in a base or update file is not correct. | | | | | |
| **Message** | Incorrect data order. | | | | | |
| **Solution** | Amend data order. | | **Conformity** | 6.1.1 | | |
| **Test Case No. 1** | Revised data order in base file, so that a feature record occurs before the vector records. | | | | | |
| **Location** | - | **S57 Encoding** | - | - | | |
| **FOID or VRID** | - |  |  |  | | |
| **Screen Capture** |  | | | | | |
| **Expected Test Results** | 555: An error “Incorrect data order” should be triggered. | | | | | |
| **Secondary Errors** | None | | | | | |
|  | | | | | | |
| **Test Case No. 2** | Revised data order in AA500008.001 update file, so that a feature record occurs before the vector records. | | | | | |
| **Location** | - | **S57 Encoding** | - | - | | |
| **FOID or VRID** | - |  |  |  | | |
| **Screen Capture** |  | | | | | |
| **Expected Test Results** | 555: An error “Incorrect data order” should be triggered. | | | | | |
| **Secondary Errors** | None | | | | | |

1. **Test Dataset: AA500009**

**S‐58 Recommended ENC Validation Checks covered in this section:**

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| **S‐58 Check** | **Description** |
| 534 | If a delete cell message contains anything other than the DSID field AND EDTN is Equal to 0. |

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| **Dataset Name** | AA500009 | **S‐58 Check** | 534 | | **Type** | C |
| **S-58 Description** | If a delete cell message contains anything other than the DSID field AND EDTN is Equal to 0. | | | | | |
| **Message** | Incorrect delete cell message. | | | | | |
| **Solution** | Remove additional information from delete cell message. | | **Conformity** | 5.7 | | |
| **Test Case No. 1** | Created cancelled update file (AA500009.001) and added additional information. | | | | | |
| **Location** | - | **S57 Encoding** | - | - | | |
| **FOID or VRID** | - |  |  |  | | |
| **Screen Capture** |  | | | | | |
| **Expected Test Results** | 534: An error “Incorrect delete cell message” should be triggered. | | | | | |
| **Secondary Errors** | None | | | | | |

1. **Test Dataset: AA500010**

**S‐58 Recommended ENC Validation Checks covered in this section:**

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| **S‐58 Check** | **Description** |
| 1021a | If the data set is not a re-issue AND the UPDN subfield is not equivalent to the extension of the data set file name. |

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| **Dataset Name** | AA500010 | **S‐58 Check** | 1021a | | **Type** | C |
| **S-58 Description** | If the data set is not a re-issue AND the UPDN subfield is not equivalent to the extension of the data set file name. | | | | | |
| **Message** | Update number is incorrect or not equivalent to the data set file name extension. | | | | | |
| **Solution** | Amend UPDN subfield. | | **Conformity** | Appendix B.1,  Annex A (2.2.2) | | |
| **Test Case No. 1** | Modified UPDN subfield as 2 for AA500010.001 file. | | | | | |
| **Location** | - | **S57 Encoding** | - | - | | |
| **FOID or VRID** | - |  |  |  | | |
| **Screen Capture** |  | | | | | |
| **Expected Test Results** | 1021a: An errors “Update number is incorrect or not equivalent to the data set file name extension” should be triggered. | | | | | |
| **Secondary Errors** | None | | | | | |

1. **Test Dataset: AA500011**

**S‐58 Recommended ENC Validation Checks covered in this section:**

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| **S‐58 Check** | **Description** |
| 1024a | For a base cell file if the limits contained in the subfields SLAT, WLON, NLAT, and ELON of the CATD field of the catalogue  file are Not equal to the furthest coordinates of the M\_COVR meta object in the corresponding base cell file. |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Dataset Name** | AA500011 | **S‐58 Check** | 1024a | | **Type** | C |
| **S-58 Description** | For a base cell file if the limits contained in the subfields SLAT, WLON, NLAT, and ELON of the  CATD field of the catalogue file are Not equal to the furthest coordinates of the M\_COVR meta object in the corresponding base cell file. | | | | | |
| **Message** | Limits in catalogue do not correspond to M\_COVR limits for a base cell file. | | | | | |
| **Solution** | Amend limits in catalogue or base cell file M\_COVR object to agree. | | **Conformity** | Appendix B.1  (5.6.3 and 6.2.2)  and Logical  consistency | | |
| **Test Case No. 1** | Modified subfields SLAT, WLON, NLAT and ELON in CATLOG file. | | | | | |
| **Location** | - | **S57 Encoding** | - | - | | |
| **FOID or VRID** | - |  |  |  | | |
| **Screen Capture** |  | | | | | |
| **Expected Test Results** | 1024a: An error “Limits in catalogue do not correspond to M\_COVR limits for a base cell file” must be triggered. | | | | | |
| **Secondary Errors** | None | | | | | |

1. **Test Dataset: AA500012**

**S‐58 Recommended ENC Validation Checks covered in this section:**

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| **S‐58 Check** | **Description** |
| 1024b | For an update cell file if the limits are not identical to the limits of the base cell to which they apply. |

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| **Dataset Name** | AA500012 | **S‐58 Check** | 1024b | | **Type** | C |
| **S-58 Description** | For an update cell file if the limits are not identical to the limits of the base cell to which they apply. | | | | | |
| **Message** | Update with limits different to that of the base cell. | | | | | |
| **Solution** | Amend limits of update file. | | **Conformity** | Appendix B.1  (5.6.3 and 6.2.2)  and Logical  consistency | | |
| **Test Case No. 1** | Revised update file (AA500012.001) boundary limits in catlog file. | | | | | |
| **Location** | 32°28'32.75"S 61°08'22.07"E | **S57 Encoding** | M\_COVR | CATCOV = 1 | | |
| **FOID or VRID** | VE-0000000007 |  |  |  | | |
| **Screen Capture** |  | | | | | |
| **Expected Test Results** | 1024b: An error “Update with limits different to that of the base cell” should be triggered. | | | | | |
| **Secondary Errors** | None | | | | | |

1. **Test Dataset: AA500013**

**S‐58 Recommended ENC Validation Checks covered in this section:**

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| **S‐58 Check** | **Description** |
| 1017 | If the format of the catalogue file is not correct. |

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| **Dataset Name** | AA500013 | **S‐58 Check** | 1017 | | **Type** | C |
| **S-58 Description** | If the format of the catalogue file is not correct. | | | | | |
| **Message** | Catalogue file format not correct. | | | | | |
| **Solution** | Amend format of the catalogue file. | | **Conformity** | Appendix B.1 (6.2) | | |
| **Test Case No. 1** | Added extra co-ordinate field in catalogue file. | | | | | |
| **Location** | - | **S57 Encoding** | - |  | | |
| **FOID or VRID** | - |  | - |  | | |
| **Screen Capture** |  | | | | | |
| **Expected Test Results** | 1017: An error “Catalogue file format not correct” should be triggered. | | | | | |
| **Secondary Errors** | None | | | | | |

1. **Test Dataset: AA500014**

**S‐58 Recommended ENC Validation Checks covered in this section:**

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| **S‐58 Check** | **Description** |
| 38 | For each update record which contains more than one of the following fields: FFPC, VRPC, FSPC or SGCC. |

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| **Dataset Name** | AA500014 | **S‐58 Check** | 38 | | **Type** | C |
| **S-58 Description** | For each update record which contains more than one of the following fields: FFPC, VRPC, FSPC or SGCC. | | | | | |
| **Message** | Update record contains more than one of the following fields: FFPC, VRPC, FSPC or SGCC. | | | | | |
| **Solution** | Remove additional fields from update record. | | **Conformity** | Part 3 (8.4.2.3), (8.4.3.2b), (8.4.2.4) and (8.4.3.3) | | |
| **Test Case No. 1** | Added additional fields for FFPC field in AA500014.001 in update file. | | | | | |
| **Location** | - | **S57 Encoding** | - |  | | |
| **FOID or VRID** | AA 3876429282 |  | - |  | | |
| **Screen Capture** |  | | | | | |
| **Expected Test Results** | 38: An error “Update record contains more than one of the following fields: FFPC, VRPC, FSPC or SGCC” must be triggered. | | | | | |
| **Secondary Errors** | None | | | | | |
| **Test Case No. 2** | Added additional fields for VRPC field in AA500014.001 in update file. | | | | | |
| **Location** | - | **S57 Encoding** | - |  | | |
| **FOID or VRID** | VE 0000000046 |  | - |  | | |
| **Screen Capture** |  | | | | | |
| **Expected Test Results** | 38: An error “Update record contains more than one of the following fields: FFPC, VRPC, FSPC or SGCC” must be triggered. | | | | | |
| **Secondary Errors** | None | | | | | |
| **Test Case No. 3** | Added additional fields for FSPC field in AA500014.001 in update file. | | | | | |
| **Location** | - | **S57 Encoding** | - |  | | |
| **FOID or VRID** | AA 654388317 |  | - |  | | |
| **Screen Capture** |  | | | | | |
| **Expected Test Results** | 38: An error “Update record contains more than one of the following fields: FFPC, VRPC, FSPC or SGCC” must be triggered. | | | | | |
| **Secondary Errors** | None | | | | | |
| **Test Case No. 3** | Added additional fields for SGCC field in AA500014.001 in update file. | | | | | |
| **Location** | - | **S57 Encoding** | - |  | | |
| **FOID or VRID** | VE 0000000043 |  | - |  | | |
| **Screen Capture** |  | | | | | |
| **Expected Test Results** | 38: An error “Update record contains more than one of the following fields: FFPC, VRPC, FSPC or SGCC” should be triggered. | | | | | |
| **Secondary Errors** | None | | | | | |

1. **Test Dataset: AA500015**

**S‐58 Recommended ENC Validation Checks covered in this section:**

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| **S‐58 Check** | **Description** |
| 34 | For each of the following fields FFPT, FSPT or VRPT where the update pointer index does not refer to a valid record NAME and index. |

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| **Dataset Name** | AA500015 | **S‐58 Check** | 34 | | **Type** | C |
| **S-58 Description** | For each of the following fields FFPT, FSPT or VRPT where the update pointer index does not refer to a valid record NAME and index. | | | | | |
| **Message** | Update pointer index does not refer to a valid record NAME and index for FFPT, FSPT or VRPT. | | | | | |
| **Solution** | Ensure update pointer index refers to a valid record NAME and index. | | **Conformity** | Part 3 (8.3.4) | | |
| **Test Case No. 1** | Revised record NAME and index for FFPT field in AA500015.001 update file. | | | | | |
| **Location** | - | **S57 Encoding** | - | - | | |
| **FOID or VRID** | AA 3949241977 |  | - |  | | |
| **Screen Capture** |  | | | | | |
| **Expected Test Results** | 34: An error “Update pointer index does not refer to a valid record NAME and index for FFPT, FSPT or VRPT” must be triggered. | | | | | |
| **Secondary Errors** | None | | | | | |
| **Test Case No. 2** | Revised record NAME and index for FSPT field in AA500015.001 update file. | | | | | |
| **Location** | - | **S57 Encoding** | - | - | | |
| **FOID or VRID** | AA 3455705049 |  | - |  | | |
| **Screen Capture** |  | | | | | |
| **Expected Test Results** | 34: An error “Update pointer index does not refer to a valid record NAME and index for FFPT, FSPT or VRPT” should be triggered. | | | | | |
| **Secondary Errors** | None | | | | | |
| **Message** | Update pointer index does not refer to a valid record NAME and index for FFPT, FSPT or VRPT. | | | | | |
| **Test Case No. 3** | Revised record NAME and index for VRPT field in AA500015.001 update file. | | | | | |
| **Location** | - | **S57 Encoding** | - | - | | |
| **FOID or VRID** | VE 000028 |  | - |  | | |
| **Screen Capture** |  | | | | | |
| **Expected Test Results** | 34: An error “Update pointer index does not refer to a valid record NAME and index for FFPT, FSPT or VRPT” should be triggered. | | | | | |
| **Secondary Errors** | None | | | | | |

1. **Test Dataset: AA500016**

**S‐58 Recommended ENC Validation Checks covered in this section:**

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| **S‐58 Check** | **Description** |
| 30 | For each of the following: FFPC-FFIX, FSPC-FSIX, SGCC-CCIX, and VRPC-VPIX subfields where the index position for updating is invalid. |

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| **Dataset Name** | AA500016 | **S‐58 Check** | 30 | | **Type** | C |
| **S-58 Description** | For each of the following: FFPC-FFIX, FSPC-FSIX, SGCC-CCIX, and VRPC-VPIX subfields where the index position for updating is invalid. | | | | | |
| **Message** | Invalid index position for updating in the following subfields FFPC-FFIX, FSPC-FSIX, SGCC-CCIX or VRPC-VPIX. | | | | | |
| **Solution** | Amend to valid index position for updating. | | **Conformity** | Part 3 (7.7.1.5), (7.6.5), (7.6.7) and (7.7.1.3) | | |
| **Test Case No. 1** | We revised index position of FFPC-FFIX subfield in AA500016.001 update file. | | | | | |
| **Location** | - | **S57 Encoding** | - | - | | |
| **FOID or VRID** | AA 3655597983 |  | - |  | | |
| **Screen Capture** |  | | | | | |
| **Expected Test Results** | 30: An errors “Invalid index position for updating in the following subfields FFPC-FFIX, FSPC-FSIX, SGCC-CCIX or VRPC-VPIX” should be triggered. | | | | | |
| **Secondary Errors** | None | | | | | |
| **Test Case No. 2** | We revised index position of FSPC-FSIX subfield in AA500016.001 update file. | | | | | |
| **Location** | - | **S57 Encoding** | - | - | | |
| **FOID or VRID** | AA 440509764 |  | - |  | | |
| **Screen Capture** |  | | | | | |
| **Expected Test Results** | 30: An errors “Invalid index position for updating in the following subfields FFPC-FFIX, FSPC-FSIX, SGCC-CCIX or VRPC-VPIX” must be triggered. | | | | | |
| **Secondary Errors** | None | | | | | |
| **Test Case No. 3** | We revised index position of SGCC-CCIX subfield in AA500016.001 update file. | | | | | |
| **Location** | - | **S57 Encoding** | - | - | | |
| **FOID or VRID** | VE 000015 |  | - |  | | |
| **Screen Capture** |  | | | | | |
| **Expected Test Results** | 30: An errors “Invalid index position for updating in the following subfields FFPC-FFIX, FSPC-FSIX, SGCC-CCIX or VRPC-VPIX” must be triggered. | | | | | |
| **Secondary Errors** | None | | | | | |
| **Test Case No. 4** | We revised index position of VRPC-VPIX subfield in AA500016.001 update file. | | | | | |
| **Location** | - | **S57 Encoding** | - | - | | |
| **FOID or VRID** | VE 000015 |  | - |  | | |
| **Screen Capture** |  | | | | | |
| **Expected Test Results** | 30: An errors “Invalid index position for updating in the following subfields FFPC-FFIX, FSPC-FSIX, SGCC-CCIX or VRPC-VPIX” should be triggered. | | | | | |
| **Secondary Errors** | None | | | | | |

1. **Test Dataset: AA500017**

**S‐58 Recommended ENC Validation Checks covered in this section:**

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| **S‐58 Check** | **Description** |
| 1014 | If the directory structure for physical media is not in accordance with the ENC Product Specification. |

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| **Dataset Name** | AA500017 | **S‐58 Check** | 1014 | | **Type** | C |
| **S-58 Description** | If the directory structure for physical media is not in accordance with the ENC Product specification. | | | | | |
| **Message** | The directory structure for physical media is not in accordance with the ENC Product Specification. | | | | | |
| **Solution** | Correct the directory structure of the physical media. | | **Conformity** | Appendix B.1  (5.4.3) | | |
| **Test Case No. 1** | Relocated README.TXT file outside of the ENC\_ROOT directory. | | | | | |
| **Location** | - | **S57 Encoding** | - | - | | |
| **FOID or VRID** | - |  |  |  | | |
| **Screen Capture** | - | | | | | |
| **Expected Test Results** | 1014: An error “The directory structure for physical media is not in accordance with the ENC Product Specification” should be triggered. | | | | | |
| **Secondary Errors** | None | | | | | |
| **Test Case No. 2** | Relocated the update (ER) file (AA5000017.001) outside of the ENC\_ROOT directory. | | | | | |
| **Location** | - | **S57 Encoding** | - | - | | |
| **FOID or VRID** | - |  |  |  | | |
| **Screen Capture** | - | | | | | |
| **Expected Test Results** | 1014: An error “The directory structure for physical media is not in accordance with the ENC Product Specification” should be triggered. | | | | | |
| **Secondary Errors** | None | | | | | |
| **Test Case No. 3** | Relocated the base (EN) file (AA5000017.000) outside of the ENC\_ROOT directory. | | | | | |
| **Location** | - | **S57 Encoding** | - | - | | |
| **FOID or VRID** | - |  |  |  | | |
| **Screen Capture** | - | | | | | |
| **Expected Test Results** | 1014: An error “The directory structure for physical media is not in accordance with the ENC Product Specification” should be triggered. | | | | | |
| **Secondary Errors** | None | | | | | |
| **Test Case No. 4** | Relocated the catalogue file (CATALOG.031) outside of the ENC\_ROOT directory. | | | | | |
| **Location** | - | **S57 Encoding** | - | - | | |
| **FOID or VRID** | - |  |  |  | | |
| **Screen Capture** | - | | | | | |
| **Expected Test Results** | 1014: An error “The directory structure for physical media is not in accordance with the ENC Product Specification” should be triggered. | | | | | |
| **Secondary Errors** | None | | | | | |
| **Test Case No. 5** | Renamed the ENC\_ROOT directory ‘ENC\_FILE. | | | | | |
| **Location** | - | **S57 Encoding** | - | - | | |
| **FOID or VRID** | - |  |  |  | | |
| **Screen Capture** | - | | | | | |
| **Expected Test Results** | 1014: An error “The directory structure for physical media is not in accordance with the ENC Product Specification” should be triggered. | | | | | |
| **Secondary Errors** | None | | | | | |

1. **Test Dataset: AA500018**

**S‐58 Recommended ENC Validation Checks covered in this section:**

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| **S‐58 Check** | **Description** |
| 21 | For each VRPT field which is not pointed to by an edge vector record. |

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| **Dataset Name** | AA500018 | **S‐58 Check** | 21 | | **Type** | C |
| **S-58 Description** | For each VRPT field which is not pointed to by an edge vector record. | | | | | |
| **Message** | VRPT field not referenced by an edge vector record. | | | | | |
| **Solution** | Ensure VRPT field is referenced by an edge vector record or remove. | | **Conformity** | Part 3 (5.1.3) | | |
| **Test Case No. 1** | Spatial node with null class. | | | | | |
| **Location** | - | **S57 Encoding** | - |  | | |
| **FOID or VRID** | VI-0000000030 |  |  |  | | |
| **Screen Capture** |  | | | | | |
| **Expected Test Results** | 21: An error “Vector record pointer field (VRPT) not referenced by an edge vector record” must be triggered. | | | | | |
| **Secondary Errors** | 84: An error “Isolated node marked as connected” must be triggered.  28: An error “Wrong number of records in DSSI”. | | | | | |