

**S-58 2.2 ENC Product Specification checks**

No	Check description	Check message	Check solution	Conformity to:	Category
500	Check that all data are within the cell limits.	2.2			E
500	For each object where its geometry is not within the object M_COVR	Objects fall outside the coverage object;	Ensure objects are not outside of the limits of the cell.	2.2	E
501	Check that cells are rectangular.	2.2			E
501	If the cell limits are not rectangular	Cell is not rectangular.	Amend cell limits to make them rectangular.	2.2	E
502	Check that the dataset file contains no more than 5 megabytes of data.	2.2			E
502	If the dataset file size is greater than 5 megabytes.	The dataset is larger than 5Mb in size.	Ensure that the dataset is not larger than 5Mb.	2.2	E
503	Check that all objects in a cell have a unique FOID.	3.1			W
503	For each object If the FOID is not unique within this dataset.	Duplicate FOIDS exist within the dataset.	Ensure that no duplicate FOIDS exist.	3.1	W
504	Check for all prohibited object classes for ENC.	3.2			E
504	For each object of type CANBNK,LAKSHR,RIVBNK SQUARE,M_HDAT,M_PROD,M_UNIT,C_STAC,\$AR EAS,\$LINES,\$CSYMB,\$COMPS,\$TEXTS	Prohibited objects exist within the dataset.	Delete prohibited objects.	3.2	E
505	Check for mandatory meta object classes.	3.4			E
505	If objects of type M_NSYS, M_COVR do not exist within the dataset	Mandatory meta objects are missing; Include mandatory meta objects M_QUAL and M_NSYS		3.4	E
506	Check that mandatory subfields in EN and ER files contain a value (which may be a missing attribute value in the ATVL subfield of the ATTF field).	3.5.1 and Part 3 (2.1)			E
506	If mandatory subfields in EN and ER files are NULL	Mandatory sub fields are not populated.	Populate mandatory sub fields.	3.5.1 and Part 3 (2.1)	E
507	Check for all mandatory attributes.	3.5.2 and Supplement No2 Ch.4 (3.5.2.1)			E
507	If all mandatory attributes are not populated.	Mandatory attributes are not populated	Populate mandatory attributes.	3.5.2 and SuppNo2 Ch.4 (3.5.2.1)	

**Comment [r1]:** Object outside of M\_COVR

508	Check that COLPAT is encoded for every object (except LIGHTS) with more than one COLOUR. Check that no object with a value for COLPAT has only one COLOUR.	3.5.2 Logical consistency			E
508 a	For each object where multiple values of COLOUR are encoded that COLPAT is 'notNull'	COLOUR has multiple values without a value for COLPAT.	Ensure COLPAT has a value where multiple COLOUR values are encoded.	3.5.2 Logical consistency	E
508 b	For each object where COLPAT is 'notNull' that multiple values of COLOUR are encoded	COLPAT is populated without multiple COLOUR values.	Ensure multiple COLOUR values are populated or delete COLPAT value.	3.5.2 Logical consistency	E

**Comment [richardso2]:** BOYCAR with COLOUR Yellow, Black and

509 Check for all the following cases that the mandatory attribute has a value:  
ARCSLN: NATION  
ASLXIS: NATION  
CTNARE: INFORM or TXTDSC  
DEPARE: DRVAL1 and DRVAL2  
DRGARE: DRVAL1  
NEWOBJ: CLSDEF and CLSNAM  
SWPARE: DRVAL1  
DEPCNT: VALDCO  
LNDELV: ELEVAT  
MAGVAR: VALMAG  
CONZNE: NATION  
COSARE: NATION  
CUSZNE: NATION  
EXEZNE: NATION  
FSHZNE: NATION  
STSLNE: NATION  
TESARE: NATION  
M\_COVR: CATCOV  
M\_CSCL: CSCALE  
M\_QUAL: CATZOC  
M\_SDAT: VERDAT  
M\_VDAT: VERDAT  
TS\_PAD: TS\_TSP  
DWRTPPT: ORIENT  
DWRTPCL: ORIENT  
M\_NSYS: MARSYS or ORIENT  
RCTLPT: ORIENT  
Remark: For these objects, the above mandatory attributes are meaningless without values.

3.5.2  
and  
Supplement No2  
Ch.4 (3.5.2.1)

W

509	For all objects listed below where the attribute stated is 'Null' or 'not present'; ARCSLN: NATION ASLXIS: NATION CTNARE: INFORM or TXTDSC DEPARE: DRVAL1 and DRVAL2 DRGARE: DRVAL1 NEWOBJ: CLSDEF and CLSNAM SWPARE: DRVAL1 DEPCNT: VALDCO LNDELV: ELEVAT MAGVAR: VALMAG CONZNE: NATION COSARE: NATION CUSZNE: NATION EXEZNE: NATION FSHZNE: NATION STSLNE: NATION TESARE: NATION M_COVR: CATCOV M_CSCL: CSCALE M_QUAL: CATZOC M_SDAT: VERDAT M_VDAT: VERDAT TS_PAD: TS_TSP DWRTPPT: ORIENT DWRITCL: ORIENT M_NSYS: MARSYS or ORIENT RCTLPT: ORIENT	Mandatory attribute has not been populated with a value.	Populate mandatory attributes; in these cases the object is meaningless without this value.	3.5.2 and Supplement No2 Ch.4 (3.5.2.1)	W
510	Check that HORDAT only appears in M_HOPA.	3.5.3			E
510	For all objects except M_HOPA where HORDAT is 'notNull' OR 'Null'	HORDAT is encoded on objects other than M_HOPA.	Delete value of HORDAT encoded on object other than M_HOPA.	3.5.3	E
511	Check that the prohibited attributes DUNITS, HUNITS, RECDAT, RECIND, SCAMAX, PUNITS, CATQUA are	3.5.3			E

**Comment [richardso3]:** A LIGHTS object with HORDAT encoded

not used.

511	For each object with an attribute DUNITS, HUNITS, RECDAT, RECIND, SCAMAX, PUNITS, CATQUA	Prohibited attributes have been encoded.	Delete prohibited attributes.	3.5.3	E
512	Check for numeric attribute values (i.e. of type float ('F') or integer('I')) padded with non-significant zeroes.	3.5.4			E
512	For each object with an attribute of type Float or Integer where the value contains zeroes before the first numerical digit or after the last numerical digit. E.g. : For a signal period of 2.5 sec, the value of SIGPER must be 2.5 and not 02.500	Values have been padded with non-significant zeroes.	Remove non-significant zeroes. E.g. : For a signal period of 2.5 sec, the value of SIGPER must be 2.5 and not 02.500.	3.5.4	E
513	Check that an attribute on an individual Geo object does not have the same value as the general value defined by the meta object.	3.5.6			E
513	For each geo object with an attribute value identical to the corresponding meta object.	An attribute value given on a meta object is duplicated on a geo object.	Delete duplicate value from geo object.	3.5.6	E
514	Check that no use of cartographic objects has been made.	3.6			E
514	For each \$AREAS,\$CLOLN,\$COMPS,\$CSYMB,\$LINES,\$SHA BL,\$TEXTS	Cartographic objects exist within the dataset.	Delete cartographic objects.	3.6	E
515	Check that all edges with USAG = 3 [exterior boundary, truncated by the data limit] have MASK = 255 [null].	3.8			E
515	For all edges where USAG = 3 [exterior boundary, truncated by the data limit] MASK does not equal 255 [null].	Exterior edges truncated by the data limit are not masked.	MASK exterior edges truncated by the data limit.	3.8	E

**Comment [richardso4]:** Light with SIGPER encoded as 02.500

516	Check that all master/slave relations are valid.	3.9 and Appendix B1, Annex A (12.1.1 & 12.1.2)		W	
	<p><input type="checkbox"/> If the master object is of type point, check that the slave object is sharing the same node as the master object.</p> <p><input type="checkbox"/> If the master object is of type line, check that the slave object is situated on the line covered by the master object.</p> <p><input type="checkbox"/> If the master object is of type area, check that the slave object is situated within or on the boundary of the area covered by the master object.</p> <p>NOTE: CRANES, FLODOC, FORSTC, FSHFAC, HULKES, PONTON, OBSTRN, PYLONS, SILTNK and WRECKS objects must be considered as possible structure objects, in addition to the list given in Annex A (12.1.1).</p>				
516a	For all master objects of type point where the slave object is not sharing the same node as the master object	Master and slave point objects do not share the same node.	Ensure master and slave point objects share the same node.	3.9 and Appendix B1, Annex A (12.1.1 & 12.1.2)	W
516b	For all master objects of type line where the slave object does not overlap the master object	Master and slave line objects do not overlap.	Ensure the Master and Slave overlap.	3.9 and Appendix B1, Annex A (12.1.1 & 12.1.2)	W
516c	For all master objects of type area where the slave object is not within or touching the master object	Slave object of type area does not touch or fall within the master object.	Ensure the Slave object touches or lies within the Master.	3.9 and Appendix B1, Annex A (12.1.1 & 12.1.2)	W

517	<p>For a collection feature record:</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Check that it references at least two other feature objects.</li> <li><input type="checkbox"/> Check that it does not reference itself.</li> <li><input type="checkbox"/> Check that PRIM = 255 [no geometry].</li> <li><input type="checkbox"/> Check that there is only one master relationship per collection feature – all others must be slaves.</li> <li><input type="checkbox"/> Check that if a relationship is peer, then all other features in the collection are peer.</li> </ul>	3.9 and Appendix B1, Annex A (15), and Part 3 (6.2)	E		
517	<p>For a collection feature record which does not reference greater than or equal to 2 other feature objects OR that references itself OR where PRIM does not equal = 255(no geometry) OR that has more than one master relationship OR that if peer other feature collections are not peer</p>	Collection feature record is invalid.	Ensure the collection feature record references 2 or more features, does not reference itself, PRIM = 255 (no geometry), only has one master relationship and features referenced in a peer relationship are peer.	3.9 and Appendix B1, Annex A (15), and Part 3 (6.2)	E
518	<p>Check that all feature objects belong to the correct group:</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Check for all Group 1 objects having a Geometric Primitive of type Area, that the GROUP subfield [GRUP] of the Feature Record Identifier [FRID] is set to (1) [Group 1].</li> <li><input type="checkbox"/> Check for all others feature objects that the GROUP subfield [GRUP] of the Feature Record Identifier [FRID] is set to (2) [Group 2].</li> </ul>	3.10			E

518 a	For all objects FLODOC,DRGARE,LNDARE,HULKES PONTON,DEPARE,UNSARE of type area where the GROUP subfield [GRUP] of the Feature Record Identifier [FRID] is not equal to (1) [Group 1].	Skin of the earth objects are not encoded as Group 1.	Ensure that Skin of the earth objects are encoded with Feature Record Identifier [FRID] set to (1) [Group 1].	3.10	E
518 b	For all objects except FLODOC,DRGARE,LNDARE,HULKES PONTON,DEPARE,UNSARE of type area, where the GROUP subfield [GRUP] of the Feature Record Identifier [FRID] is not equal to (2) [Group 2].	Group 2 objects are not encoded as group 2.	Ensure that Group 2 objects are encoded with Feature Record Identifier [FRID] set to (1) [Group 1].	3.10	E
519	Check Group 1 coverage and consistency.	3.10.1			E
519 a	For all objects FLODOC,DRGARE,LNDARE,HULKES PONTON,DEPARE,UNSARE that their combined coverage EQUALS the data coverage M_COVR CATCOV=1	Skin of the earth (TG1) objects do not cover the data coverage (M_COVR=1)	Adjust TG1 object limits to match data coverage.	3.10.1	E
519 b	For object FLODOC,DRGARE,LNDARE,HULKES PONTON,DEPARE,UNSARE that OVERLAP	Skin of the earth (TG1) objects overlap.	Ensure TG1 objects do not overlap.	3.10.1	E

**Comment [richardso5]:** Cell with an area DEPARE where FRID=2

**Comment [richardso6]:** Cell with a CTNARE where FRID=1



- 520 Check that the use of international character sets complies with ENC Prod Spec: 3.11 and 3.5.5
- Check that the general text in the ATTF field is lexical level (0) or (1), with appropriate encoding of DSSI-ATTF.
  - Check that the general text in the NATF field is lexical levels (0), (1) or (2) with appropriate encoding of DSSI-NATF.
  - If attributes NINFOM and NPLDST contain data, check that corresponding INFORM and PILDST contain data: or report an error if they do not contain data.
  - Report an error if lexical level (2) is used anywhere else than in the NATF field. The report should contain a statement if international character sets are used and the invoking sequence, so that a check can be made on the language used.
  - Check the consistency between the use of international characters and the encoding of DSSI-AALL/NALL.
  - Check that the UT and FT are encoded at the lexical level specified and used for that field.
  - Check that all national language attributes are encoded in the Feature Record National Attribute (NATF) field.
  - Check that all feature object attributes (non national) are encoded in the Feature Record Attribute (ATTF) field.

E

520 a	If the text within the ATTF field is not lexical level (0) or (1), OR DSSI-ATTF is not encoded appropriately.	ATTF field text is not Lexical level (0) or (1) or is not encoded appropriately.	Correct text in the ATTF field.	3.11 and 3.5.5	E
520 b	If the text within the NATF field is not lexical level (0), (1) or (2), OR DSSI-NATF is encoded appropriately.	NATF field text is not Lexical level (0), (1) or (2) or is not encoded appropriately.	Correct text in the NATF field.	3.11 and 3.5.5	E
520 c	For each attribute NINFOM or NPLDST which are notNull where INFORM or PILDST are Null or Not populated.	NINFOM or NPLDST populated without corresponding value of INFORM or PILDST.	Populate INFORM or PILDST as required.	3.11 and 3.5.5	E
520 d	If lexical level (2) has been used anywhere other than the NATF field. Return character sets used and the sequence found.	Lexical level (2) used outside of the NATF field.	Correct text to remove lexical level 2.	3.11 and 3.5.5	E
520 e	If the use of international characters and encoding of DSSI-AALL/NALL are not consistent.	International characters or encoding of DSSI-AALL/NALL is inconsistent.	Correct international characters or encoding as required.	3.11 and 3.5.5	E
520f	If the UT or FT are not encoded at the lexical level specified for that field.	The UT and FT are not of the correct lexical level.	Correct UT and FT to the correct lexical level.	3.11 and 3.5.5	E
520 g	For all national language attributes which are not encoded in the Feature Record National Attribute (NATF) field.	National language attributes not encoded in the Feature Record National Attribute (NATF) field.	Encoded national language attributes using the Feature Record National Attribute (NATF) field.	3.11 and 3.5.5	E
520 h	For all feature object attributes (non national) that are not encoded in the Feature Record Attribute (ATTF) field.	Feature object attributes not encoded in the Feature Record Attribute (ATTF) field.	Encode feature object attributes in the feature record attribute (ATTF) field.	3.11 and 3.5.5	E

521	Check that OBJNAM and NOBJNM values, or INFORM and NINFOM values, or PILDST and NPLDST values, are different for any particular object.	3.11.1				W
521 a	For all objects where OBJNAM AND NOBJNM are 'notNull' AND that they are EQUAL	Values for OBJNAM and NOBJNM are identical.	Ensure that national language attributes are populated with the correct values.	3.11.1		W
521 b	For all objects where INFORM and NINFOM are 'notNull' AND that they are EQUAL	Values for INFORM and NINFOM are identical.	Ensure that national language attributes are populated with the correct values.	3.11.1		W
521 c	For all objects where PILDST and NPLDST are 'notNull' AND that they are EQUAL	Values for PILDST and NPLDST are identical.	Ensure that national language attributes are populated with the correct values.	3.11.1		W
522	Check that if NOBJNM is encoded, then OBJNAM has also been encoded.	3.11.1				W
522	For all objects where NOBJNM is 'notNull' AND OBJNAM is 'Null' OR 'not populated' Or not present	Object name in national language is populated without Object name.	Populate Object name.	3.11.1		W
523	Check that HDAT = 2 [WGS 84].	4.1				E
523	Where HDAT does not equal 2 [WGS 84].	HDAT does not equal 2 WGS 84.	Ensure HDAT equals 2 WGS 84.	4.1		E
524	Check that DUNI = 1 [metres].	4.4				E
524	Where DUNI does not equal 1 [metres].	DUNI does not equal 1 metres.	Ensure DUNI equals 1 metres.	4.4		E
525	Check that PUNI = 1 [metres].	4.4				E
525	Where PUNI does not equal 1 [metres].	PUNI does not equal 1 metres.	Ensure PUNI equals 1 metres.	4.4		E
526	Check that COUN = 1 [latitude/longitude].	4.4				E
526	Where COUN does not equal 1 [latitude/longitude].	COUN does not equal 1 latitude/longitude.	Ensure COUN equals 1 latitude/longitude.	4.4		E
527	Check that all files referenced by TXTDSC, NTXTDS and PICREP attributes exist and that the file names are in accordance with the ENC Product Specification.	5.4.1 and 5.6.4				E

527	For all attributes TXTDSC, NTXTDS, PICREP which are 'notNull' and referenced files do not exist or their names do not conform to the ENC Product Specification.	Referenced files are missing or their names are non-conformant.	Ensure referenced files exist and are named correctly.	5.4.1 and 5.6.4	E
528	Check for existence of a catalogue file.	5.4.1			E
528	If a catalogue file does not exist.	No catalogue file exists.	Create a catalogue file.	5.4.1	E
529	Check that volume names are in accordance with the ENC Product Specification.	5.4.2			E
529	If volume name is not in accordance with the ENC Product Specification.	Volume name is not in accordance with the ENC Product Specification.	Correct the volume name.	5.4.2	E
530	Check that the directory structure for physical media is in accordance with the ENC Product Specification.	5.4.3			E
	<input type="checkbox"/> An ENC_ROOT directory must exist in the first volume.				
530	If the directory structure for physical media is not in accordance with the ENC Product Specification.	The directory structure for physical media is not in accordance with the ENC Product Specification.	Correct the directory structure of the physical media.	5.4.3	E
531	Check that file names are in accordance with the ENC Product Specification.	5.6.1, 5.6.2 and 5.6.3			E
531	If the file names are not in accordance with the ENC Product Specification.	File names are not in accordance with the ENC Product Specification.	Correct file names.	5.6.1, 5.6.2 and 5.6.3	E
532	Check that text and graphic file names are unique, with extension (e.g. .TXT and .TIF) for new editions and re-issues.	5.6.4			W
532	If the text and graphic file names are NOT unique, OR NOT with extension (e.g. .TXT and .TIF) for new editions and re-issues.	Text and graphic file names incorrect incorrect format/name.	Use correctly formatted and named text and graphic files.	5.6.4	W
533	Check that the DSID-UADT subfield is not used in an ER file.	5.7			E
533	If the DSID-UADT subfield is used in an ER file.	DSID-UADT subfield populated in an ER file.	Remove value of DSID-UADT subfield.	5.7	E

534	Check that a delete cell message only contains the DSID field with EDTN = 0.	5.7				E
534	If a delete cell message contains anything other than the DSID field with EDTN = 0	Incorrect delete cell message.	Remove additional information from delete cell message.	5.7		E
535	Check that the CRC value computed on the received file is the same as the CRC value transmitted.	5.9.1				E
535	If the CRC value in the catalogue file does not equal that in the dataset.	CRC values do not match.	Correct CRC value.	5.9.1		E
536	Check that only fields that have a repetition factor repeat.	6.1.3				E
536	If a field without a repetition factor repeats.	Field without a repetition factor repeats.	Remove repeating value.	6.1.3		E
537	Check that the format of the catalogue file is correct.	6.2				E
537	If the format of the catalogue file is not correct.	Catalogue file format not correct.	Correct format of the catalogue file.	6.2		E
538	Check that CADT-IMPL = "BIN".	6.2.2				E
538	If CADT-IMPL DOES NOT EQUAL "BIN"	CADT-IMPL is not set to "BIN"	Correct CADT-IMPL.	6.2.2		E
539	Check that DSID-PROF subfield value is either 1 [EN] or 2 [ER].	6.3 and 6.4, Part 3 (7.3.1.1)				E
539	If DSID-PROF is NOT either 1 [EN] or 2 [ER].	DSID-PROF is not set to either 1 [EN] or 2 [ER].	Correct DSID-PROF.	6.3 and 6.4, Part 3 (7.3.1.1)		E
540	Check that mandatory records, fields and subfields for EN and ER files are included and contain data. Prohibited records, fields and subfields should not be used.	6.3 and 6.4				E
540 a	If mandatory records fields and subfields are not included or are null.	Mandatory records, fields or subfields are not used.	Add mandatory records/values.	6.3 and 6.4		E
540 b	If prohibited records, fields or subfields are used.	Prohibited records, fields or subfields used.	Remove prohibited records/values.	6.3 and 6.4		E
541	Check that the SIGGRP format is correct for all LIGHTS, except for fixed LIGHTS, which must not have a value for SIGGRP.	Appendix A Ch.2 (code 141)				E
541 a	For all objects of type LIGHTS If CATLIT is EQUAL TO 1 [Fixed] AND SIGGRP is encoded	SIGGRP is encoded for a fixed light.	Delete SIGGRP from fixed light.	Appendix A Ch.2 (code 141)		E

541	For all objects of type LIGHTS If CATLIT is NOT EQUAL TO 1 [Fixed] where SIGGRP does not conform to the defined format	SIGGRP is incorrectly formatted.	Ensure SIGGRP is correctly formatted with appropriate brackets.	Appendix A Ch.2 (code 141)	E
542	Check that any attribute value SIGGRP starts and finishes with a bracket.	Appendix A Ch.2 (code 141)			E
542	For all objects of type LIGHTS If CATLIT is NOT EQUAL TO 1 [Fixed] where SIGGRP does not conform to the defined format.	SIGGRP is not formatted correctly.	Correct the formatting of SIGGRP.	Appendix A Ch.2 (code 141)	E
543	Check that any TS_TSP attribute value conforms to the correct structure, (i.e. values separated by commas).	Appendix A Ch.2 (code 159)			E
543	If any TS_TSP attribute value does not conform to the correct structure, (i.e. values separated by commas).	TS_TSP value not formatted correctly.	Correct formatting of TS_TSP value.	Appendix A Ch.2 (code 159)	E
544	Check that any area covered by a M_COVR object with CATCOV = 2 [no coverage available] does not contain any other object.	2.2			E
544	If an area of M_COVR where CATCOV=2 CONTAINS any other object.	Object within an area of no coverage.	Remove object or amend coverage.	2.2	E
545	Check that each object has a valid object class code as defined by the Object Catalogue and S-57 Supplement No 2.	3.2 and Supplement No2 Ch.2			E
545	For each object which does not have a valid object class code as defined by the Object Catalogue and S-57 Supplements No 2.	Object has invalid object class code.	Correct object class code.	3.2 and Supplement No2 Ch.2	E
546	Check that each attribute has a valid attribute class code as defined by the Object Catalogue and S-57 Supplement No 2.	3.2 and Supplement No2 Ch.3			E
546	For each attribute which does not have a valid attribute class code as defined by the Object Catalogue and S-57 Supplements No 2.	Attribute has invalid attribute class code.	Correct attribute class code.	3.2 and Supplement No2 Ch.3	E
547	Check that no object contains attributes outside the list of permissible attributes for the object's class (as defined in the Object Catalogue and S-57 Supplement No 2 for the specified object).	3.2 and Supplement No2 Ch.2			E
547	For each object which contains attributes outside the list of permissible attributes for the object's class (as defined in the Object Catalogue and S-57 Supplement No 2 for the	Attribute not permitted on object class.	Remove attribute.	3.2 and Supplement No2 Ch.2	E

**Comment [r7]:** SIGGRP without brackets and CATLIT not 1

**Comment [r8]:** TS\_TSP with missing commas

**Comment [r9]:** Object within no coverage area.

**Comment [r10]:** Should we actually define the list of class codes for this one?

**Comment [r11]:** Do we need to define the actual list of class codes?

specified object.

548	Check that M_COVR meta objects provide exhaustive non-overlapping coverage of the whole cell.	3.4			E
548	If the combined coverage of M_COVR objects are not equal to the cell limits.	Cell not entirely covered by M_COVR objects.	Correct M_COVR coverage to match cell limits.	3.4	E
549	Check that all DEPARE and DRGARE objects are covered by M_QUAL objects without gaps or overlaps.	3.4			E
549	If the combined coverage of DEPARE and DRGARE objects is not covered by M_QUAL objects.	DEPARE or DRGARE objects not covered by an M_QUAL object.	Ensure full coverage of M_QUAL objects over DEPARE or DRGAREs.	3.4	E
550	Check that any UNSARE object that contains or is partly covered by a DEPCNT, OBSTRN, SOUNDG, UWTRC or WRECKS object is covered by M_QUAL objects without gaps or overlaps.	3.4			W
550	For all objects of type UNSARE which CONTAIN or OVERLAP the following objects DEPCNT, OBSTRN, SOUNDG, UWTRC or WRECKS which is not completely covered by M_QUAL objects.	UNSARE containing bathymetric features not completely covered by M_QUAL.	Ensure M_QUAL objects completely cover UNSARE objects	3.4	W
551	Check that text attribute values do not use format effecting (C0) characters (C0 as defined in S-57 Part 3, Annex B). Check that the delete character is only used in the update mechanism (i.e. in records with RUIN = 3 [modify]).	3.5.5			E
551 a	If text attribute values use (C0) characters (C0 as defined in S-57 Part 3, Annex B).	C0 characters used in text attribute values.	Correct text attribute values.	3.5.5	E
551 b	If the delete character is used outside of the update mechanism, (i.e. in records with RUIN = 3 [modify]).	Delete character used outside of the update mechanism.	Only use delete within the update mechanism.	3.5.5	E
552	Check for any object that has been encoded with one of the new attribute values introduced in S-57 Edition 3.1 that INFORM contains a description of the enumerate value.	3.5.7			E

552	For each object where an attribute value added in S-57 Edition 3.1 has been encoded that INFORM has not been populated containing a description of the enumerate value.	Attribute value added in S-57 Edition 3.1 does not have a description in INFORM.	Ensure that for new attribute values INFORM contains a description of the enumerate value.	3.5.7	E
553	Check that no Group 1 object contains the attributes DATSTA, DATEND, PERSTA or PEREND.	3.10.1 and logical consistency			E
553	For each object of type FLODOC,DRGARE,LNDARE,HULKES PONTON,DEPARE,UNSARE where any of DATSTA,DATEND,PERSTA,PEREND are encoded.	Attributes DATSTA, DATEND, PERSTA or PEREND are encoded on Group 1 objects.	Delete these attributes from Group 1 objects.	3.10.1 and logical consistency	E
554	Check for any edge used by only one M_COVR object with CATCOV = 1 [coverage available], that it is also shared with one, and only one, Group 1 object.	3.10.1			E
554	For each edge referenced by only one M_COVR object with CATCOV = 1 [coverage available], that is also shared by more than one Group 1 object.	Edge of M_COVR coverage available referenced by more than one Group 1 object.	Ensure edges on the edge of data coverage only reference one Group 1 object.	3.10.1	E
555	Check that the order of data in each base or update file is correct.	6.1.1			E
555	If the order of the data in a base or update file is not correct.	Incorrect data order.	Correct data order.	6.1.1	E
556	Check for the limits of data set files given in the Catalogue Directory field (CATD) of the catalogue file (subfields SLAT, WLON, NLAT, ELON):	5.6.3, 6.2.2 and logical consistency			E
	<p>1. That the limits for base cell files are identical to the furthest coordinates of M_COVR geometry found in the corresponding base cell files.</p> <p>2. That the limits for update cell files are identical to the limits of the base cell file to which they apply.</p>				

**Comment [r12]:** Is this still required?



556 a	For a base cell file if the limits contained in the Catalogue Directory field (CATD) of the catalogue file (subfields SLAT, WLON, NLAT, ELON): are not equal to the furthest coordinates of the M_COVR object in the corresponding base cell file.	Limits in catalogue do not correspond to M_COVR limits for a base cell file.	Amend limits in catalogue or base cell file M_COVR object to agree.	5.6.3, 6.2.2 and logical consistency	E
556 b	For an update cell file if the limits are not identical to the limits of the base cell to which they apply.	Update with limits different to that of the target base cell.	Correct limits of update file.	5.6.3, 6.2.2 and logical consistency	E
557	Check that any SIGSEQ attribute value conforms to the correct structure (i.e. string content in accordance with format specification).	Appendix A Ch.2 (code 143)			E
557	For each SIGSEQ attribute value which does not conform to the correct structure (i.e. string content in accordance with format specification).	SIGSEQ attribute not formatted correctly.	Correct formatting of SIGSEQ attribute value.	Appendix A Ch.2 (code 143)	E
558	Check for any object having SIGSEQ encoded that the value of SIGPER is equal to the sum of intervals of light and intervals of eclipse described by SIGSEQ.	Appendix A Ch.2 (code 143) and logical consistency			E
558	For each object where SIGSEQ is 'not null' and SIGPER is 'not equal to' the sum of the intervals of lit and eclipse given in SIGSEQ.	SIGPER does not correspond to SIGSEQ.	Ensure SIGPER corresponds to the value of SIGSEQ	Appendix A Ch.2 (code 143) and logical consistency	E

559	Check that no STATUS attribute value contains an impossible combination:  <input type="checkbox"/> 1 [permanent] with at least one of 2 [occasional], 5 [periodic/intermittent], 7 [temporary];  <input type="checkbox"/> 3 [recommended] with at least one of 4 [not in use], 11 [extinguished];  <input type="checkbox"/> 4 [not in use] with at least one of 5 [periodic/intermittent], 9 [mandatory];  <input type="checkbox"/> 5 [periodic/intermittent] with 11 [extinguished];  <input type="checkbox"/> 9 [mandatory] with 11 [extinguished];  <input type="checkbox"/> 16 [watched] with 17 [un-watched];  <input type="checkbox"/> 8 [private] with 14 [public].	Appendix A Ch.2 (code 149) and logical consistency				W
559 a	For all objects where STATUS =1 [permanent] with at least one of 2 [occasional], 5 [periodic/intermittent], 7 [temporary];	Illogical combination of STATUS values.	Amend values for STATUS.	Appendix A Ch.2 (code 149) and logical consistency		E
559 b	For all objects where STATUS =3 [recommended] with at least one of 4 [not in use], 11 [extinguished];	Illogical combination of STATUS values.	Amend values for STATUS.	Appendix A Ch.2 (code 149) and logical consistency		E
559 c	For all objects where STATUS =4 [not in use] with at least one of 5 [periodic/intermittent], 9 [mandatory];	Illogical combination of STATUS values.	Amend values for STATUS.	Appendix A Ch.2 (code 149) and logical consistency		E
559 d	For all objects where STATUS =5 [periodic/intermittent] with 11 [extinguished];	Illogical combination of STATUS values.	Amend values for STATUS.	Appendix A Ch.2 (code 149) and logical consistency		E

559e	For all objects where STATUS =9 [mandatory] with 11 [extinguished];	Illogical combination of STATUS values.	Amend values for STATUS.	Appendix A Ch.2 (code 149) and logical consistency	E
559f	For all objects where STATUS =16 [watched] with 17 [unwatched];	Illogical combination of STATUS values.	Amend values for STATUS.	Appendix A Ch.2 (code 149) and logical consistency	E
559g	For all objects where STATUS =8 [private] with 14 [public];	Illogical combination of STATUS values.	Amend values for STATUS.	Appendix A Ch.2 (code 149) and logical consistency	E
560	Check that all feature objects in a data set having the same FOID have the same description (same object class and attribute values) and are of type Line or Area.	3.1			E
560	For all objects with the same FOID where the object class and attribute values are not identical and are of type Line or Area.	Objects with the same FOID are not identical.	Ensure objects with the same FOID have the same object class and attribute values.	3.1	E
561	Check that all feature objects in a data set having the same FOID are not part of a collection object or a master/slave relationship.	3.1			E
561	For all objects with identical FOIDs which are part of a collection object or master/slave relationship.	Objects with the same FOID part of a collection or master/slave relationship.	Ensure that objects with the same FOID are not part of collections or master slave relationships.	3.1	E
562	Check for any NEWOBJ object, that at least one of the attributes INFORM or TXTDSC contains the name of the feature object. The text must commence with the approved object class name (CLSNAM) of the feature (i.e. New Object).	Supplement No2 Ch.4 (3.3.1) and Ch.5 (16)			E
562	For all objects of type NEWOBJ where INFORM or TXTDSC does not contain the CLSNAM of the feature.	CLSNAM not included in INFORM or TXTDSC for a NEWOBJ object.	Populate INFORM or TXTDSC with the CLSNAM of the New Object.	Supplement No2 Ch.4 (3.3.1) and Ch.5 (16)	E

563	Check for any RESARE object that has been encoded with values (27) [Environmentally Sensitive Sea Area (ESSA)] and/or (28) [Particularly Sensitive Sea Area (PSSA)] for CATREA, that at least one of the attributes INFORM or TXTDSC contains the meaning of the value. The text must commence with the meaning of the value (i.e. Environmentally Sensitive Sea Area (ESSA) or Particularly Sensitive Sea Area (PSSA)).	Supplement No1 Ch.4 (3.5.7.1)	E		
563	For all objects of type RESARE where CATREA = 27 or 28 AND INFORM or TXTDSC do not contain the meaning of the value.	Attribute values of RESARE used without their meaning in INFORM or TXTDSC.	Populate TXTDSC or INFORM with value meaning.	Supplement No1 Ch.4 (3.5.7.1)	E
564	Check for any base (EN) or update (ER) file containing at least one object of the following list: ARCSLN, ASLXIS, NEWOBJ, or RESARE having CATREA = 27 [Environmentally Sensitive Sea Area (ESSA)] or 28 [Particularly Sensitive Sea Area (PSSA)],  <input type="checkbox"/> that it contains the following subfield values in the DSID field:  - (03.1) for the STED subfield, - (2.0) for the PRED subfield,  <input type="checkbox"/> that it has the text "STED:3.1.1;" included in the COMT subfield of the DSID field.	Supplement No1 Ch.4 (6.3.2.1 and 6.4.2.1)	E		

**Comment [r13]:** As previously is this still required?

564	For all objects of type ARCSLN, ASLXIS, NEWOBJ or RESARE with CATREA = 27 [Environmentally Sensitive Sea Area (ESSA)] or 28 [Particularly Sensitive Sea Area (PSSA)], If the DSID subfield STED does not equal (03.1) OR PRED does not equal (2.0) OR COMT does not contain "STED:3.1.1;".	DSID subfields not correctly populated for a dataset containing new attribute values.	Correct DSID subfields STED (03.1) and PRED (2.0) and ensure COMT contains "STED:3.1.1;".	Supplement No1 Ch.4 (6.3.2.1 and 6.4.2.1)	E
565	<p>Check for any update (ER) file applying to a base (EN) file which has the text "STED:3.1.1;" included in the COMT subfield of the DSID field,</p> <p><input type="checkbox"/> that it contains the following subfield values in the DSID field:</p> <ul style="list-style-type: none"> <li>- (03.1) for the STED subfield,</li> <li>- (2.0) for the PRED subfield,</li> </ul> <p><input type="checkbox"/> that it has the text "STED:3.1.1;" included in the COMT subfield of the DSID field.</p>	Supplement No1 Ch.4 (6.4.2.1)		Supplement No1 Ch.4 (6.4.2.1)	E
565	For all update (ER) files being applied to a base (EN) file where the COMT subfield of the DSID field contains "STED:3.1.1;". If STED is not equal to (03.1) AND PRED is not equal to (2.0).	Values of STED or PRED are not correct.	Ensure that where the COMT field contains "STED:3.1.1;" STED equals (03.1) and PRED equals (2.0).	Supplement No1 Ch.4 (6.4.2.1)	E
566	Check that there is no NEWOBJ object in the data that has not been approved by an IHO ENC Encoding Bulletin.	Supplement No2 Ch.2 (2.8), Ch.4 (3.3.1) and Ch.5 (16)		Supplement No1 Ch.4 (6.4.2.1)	E

566 ? Suggest amend check to detect any Newobj until it has been authorised by TSMAD.

A NEWOBJ object is encoded within the dataset. At this time TSMAD have not approved its use.

Delete the NEWOBJ object from the dataset.

Supplement No2  
Ch.2 (2.8),  
Ch.4 (3.3.1)  
and Ch.5 (16)

E

**Comment [richardso14]:** Encode single point NEWOBJ