ERS-1 WSC.FDC PRODUCT

CCT FORMAT

EARTHNET PROGRAMME OFFICE

Wind Scatterometer Fast Delivery Copy

Acronym: **WSC.FDC**

This product includes the intermediate and final results of the wind product generation. It consists of an array of wind vectors expressed in wind speed and direction.The product corresponds to a 500 x 500-km area. This area is represented by a 19 x 19 array of cells, with nominal 25-km spacing. The produced wind field corresponds to an equivalent neutral stability wind field, referenced to a height of 10 m. For each cell a wind vector is given together with latitude and longitude. The sigma nought and other information needed to convert these to wind fields are also provided for each cell.

1) General CCT structure

The CCT contains the following four files :

Volume Directory File

Leader File

Data Set file

Null Volume File

2) Files description

a) Volume Directory File:

volume descriptor record	360 bytes (mandatory)
leader file pointer record	360 bytes (mandatory)
data set file pointer record	360 bytes (mandatory)

b) Leader File:

file descriptor record	360 bytes (mandatory)
FDC catalogue record(s)	1660 bytes (mandatory)

c) Data Set File:

file descriptor record	360 bytes (mandatory)
data record	16968 bytes (mandatory)
It includes :	one record header (20 bytes)
	one Main Product Header (176 bytes)
	one Specific Product Header (166 bytes)
	361 Products Data Set Records (46 bytes)

d) Null Volume File:

volume descriptor record	360 bytes (mandatory)

TABLE 2.1 . VOLUME DESCRIPTOR RECORD

FIELD	BYTES	FORMAT	DESCRIPTION	CONTENT
1	1-4	B4	Record sequence number	(1)
2	5	B1	1-st record subtype code	(192)
3	6	B1	Record type code	(192)
4	7	B1	2-nd subtype code	(18)
5	8	B1	3-rd subtype code	(18)
6	9-12	B4	Length of this record	(360)
7	13-14	A2	ASCII/EBCDIC flag	A$
8	15-16	A2	blanks	$$
9	17-28	A12	format control document	CCB-LBR-0001
10	29-30	A2	Superstructure format control document	A$
11	31-32	A2	Superstructure record format revision	A$
12	33-44	A12	Logical volume generating facility software release and revision level	<software.id.>
13	45-60	A16	ID of physical volume containing this volume descriptor	<physical.tape.id.>
14	61-76	A16	Logical volume identifier	<logical.set.id.>
15	77-92	A16	Volume set identifier (product generation date) (YYYYMMDDhhmmssdd, dd=deci-secs)	<volume.set.id.>
16	93-94	I2	Total number of physical volumes in the logical volume	$1
17	95-96	I2	Physical volume sequence number of the first tape within the logical volume	$1
18	97-98	I2	Physical volume sequence number of the last tape within the logical volume	$1
19	99-100	I2	Physical volume sequence number of the current tape within the logical volume	$1
20	101-101	I4	First referenced file number in this physical volume whithin the logical volume.	$$$1
21	105-108	I4	Logical volume within a volume set	$$$1
22	109-112	I4	Logical volume number within physical volume	$$$1
23	113-120	A8	Logical volume creation date (YYYYMMDD)	<YYYYMMDD>
24	121-128	A8	Logical volume creation time (hhmmssdd, dd=deci-seconds)	<hhmmssdd>
25	129-140	A12	Logical volume generation country	<country..>
26	141-148	A8	Logical volume generating agency	<agency..>
27	149-160	A12	Logical volume generating facility	<facility.>
28	161-164	I4	Number of file pointer records in volume directory	$$$2
29	165-168	I4	Number of records in volume directory	$$$3
30	169-260	A92	Volume descriptor spare segment (always blank filled)	(blanks)
31	261-360	A100	Local use segment	(blanks)

TABLE 2.2 LEADER FILE POINTER RECORD

FIELD	BYTES	FORMAT	DESCRIPTION	CONTENT
1	1-4	B4	Record number	(2)
2	5	B1	1-st record subtype code	(219)
3	6	B1	record type code	(192)
4	7	B1	2-nd subtype code	(18)
5	8	B1	3-rd subtype code	(18)
6	9-12	B4	Length of this record	(360)
7	13-14	A2	ASCII/EBCDIC flag for referenced file	A$
8	15-16	A2	blank	$$
9	17-20	I4	Referenced file number	$$$1
10	21-36	A16	Referenced file name	ERS1.WSC.FDCLEAD
11	37-64	A28	Referenced file class	WSCLEADER$FILE$$$$$$
12	65-68	A4	Referenced file class code	WSCL
13	69-96	A28	Referenced file data type	MIXED$BINARY$AND$ASC
14	97-100	A4	Referenced file data type code	MBAA
15	101-108	I8	Number of records in referenced file	<nnnnnnnn>
16	109-116	I8	Referenced file 1-st record length	$$$$$512
17	117-124	I8	Referenced file maximum record length	$$$$1660
18	125-136	A12	Referenced file record length type	VARIABLE$LEN
19	137-140	A4	Referenced file record length type code	VARE
20	141-142	I2	Referenced file physical volume start number	$1
21	143-144	I2	Referenced file physical volume end number	$1
22	145-152	I8	Referenced file portion start, 1-st record number for this physical volume	$$$$$$$1
23	153-160	I8	Referenced file portion end, last record number for this physical volume	<nnnnnnnn>
24	161-260	A100	File pointer spare segment	(blanks)
25	261-360	A100	Local use segment	(blanks)

TABLE 2.3 DATA FILE POINTER RECORD

FIELD	BYTES	FORMAT	DESCRIPTION	CONTENT
1	1-4	B4	Record number	(3)
2	5	B1	1-st record subtype code	(219)
3	6	B1	record type code	(192)
4	7	B1	2-nd subtype code	(18)
5	8	B1	3-rd subtype code	(18)
6	9-12	B4	Length of this record	(360)
7	13-14	A2	ASCII/EBCDIC flag for referenced file	A$
8	15-16	A2	blank	$$
9	17-20	I4	Referenced file number	$$$2
10	21-36	A16	Referenced file name	ERS1.WSC.FDCDTOP
11	37-64	A28	Referenced file class	DATA$TYPE$OPTIONS$FILE
12	65-68	A4	Referenced file class code	DTOP
13	69-96	A28	Referenced file data type	MIXED$BINARY$AND$ASC
14	97-100	A4	Referenced file data type code	MBAA
15	101-108	I8	Number of records in referenced file	<nnnnnnnn>
16	109-116	I8	Referenced file 1-st record length	$$$$$512
17	117-124	I8	Referenced file maximum record length	$$$16968
18	125-136	A12	Referenced file record length type	VARIA$LENGTH
19	137-140	A4	Referenced file record length type code	VARI
20	141-142	I2	Referenced file physical volume start number	$1
21	143-144	I2	Referenced file physical volume end number	$1
22	145-152	I8	Referenced file portion start, 1-st record number for this physical volume	<$$$$$$$1>
23	153-160	I8	Referenced file portion end, last record number for this physical volume	<nnnnnnnn>
24	161-260	A100	File pointer spare segment	(blanks)
25	261-360	A100	Local use segment	(blanks)

TABLE 3.1 WSCLEADER FILE - FILE DESCRIPTOR RECORD (FIXED SEGMENT) DEFINITION

FIELD	BYTES	FORMAT	DESCRIPTION AND/OR CONTENT	CONTENT
1	1-4	B4	Record sequence number	(1)
2	5	B1	1-st record sub-type code	(63)
3	6	B1	Record type code	(192)
4	7	B1	2-nd record sub-type code	(18)
5	8	B1	3-rd record sub-type code	(18)
6	9-12	B4	Length of this record	(512)
7	13-14	A2	ASCII/EBCDIC flag	$A
8	15-16	A2	blanks	$$
9	17-28	A12	Format control document ID for this data file format	CEOS-LBR-CCT
10	29-30	A2	Format control document revision level	$A
11	31-32	A2	File design descriptor revision letter	$A
12	33-44	A12	Generating software release and revision level	<software.id.>
13	45-48	I4	File number	$$$1
14	49-64	A16	File name	ERS1.WSC.FDCLEAD
15	65-68	A4	Record sequence and location type flag	FSEQ
16	69-76	I8	Sequence number location	$$$$$$$1
17	77-80	I4	Sequence number field length	$$$4
18	81-84	A4	Record code and location type flag	FTYP
19	85-92	I8	Record code location	$$$$$$$5
20	93-96	I4	Record code field length	$$$4
21	97-100	A4	Record length and location type flag	FLGT
22	101-108	I8	Record length location	$$$$$$$9
23	109-112	I4	Record length field length	$$$4
24	113	A1	Reserved	blank
25	114	A1	Reserved	blank
26	115	A1	Reserved	blank
27	116	A1	Reserved	blank
28	117-180	A64	Reserved segment	blank

TABLE 3.2 WSCLEADER FILE - FILE DESCRIPTOR RECORD (VARIABLE SEGMENT) DEFINITION

FIELD	BYTES	FORMAT	DESCRIPTION	
29	181-186	I6	number of catalogue records	<nnnnnn>
30	187-192	I6	length of above records	$$1660
31	193-198	I6	reserved	
32	199-204	I6	reserved	
33	205-210	I6	number of platform pos. data records	$$$$$0
34	211-216	I6	length of above records	$$$$$0
35	217-222	I6	number of attitude data records	$$$$$0
36	223-228	I6	length of above records	$$$$$0
37	229-234	I6	reserved	
38	235-240	I6	reserved	
39	241-246	I6	number of OBOG Time correlation records	$$$$$0
40	247-252	I6	length of above records	$$$$$0
41	253-258	I6	reserved	
42	259-264	I6	reserved	
43	265-270	I6	number of sensor parameters data records	$$$$$0
44	271-276	I6	length of above records	$$$$$0
45	277-282	I6	number of calibration data records	$$$$$0
46	283-288	I6	length of above records	$$$$$0
47	289-294	I6	spare	
48	295-300	I6	spare	
49	301-306	I6	spare	
50	307-312	I6	spare	
51	313-318	I6	spare	
52	319-324	I6	spare	
53	325-330	I6	spare	
54	331-336	I6	spare	
55	337-342	I6	spare	
56	343-348	I6	spare	
57	349-354	I6	Number of Facility data records	$$$$$0
58	355-360	I6	Facility data record length	$$$$$0
59	361-366	I6	spare	
60	367-372	I6	spare	
61	373-378	I6	spare	
62	379-384	I6	spare	
63	385-390	I6	spare	
64	391-396	I6	spare	
65	397-402	I6	spare	
66	403-408	I6	spare	
67	409-414	I6	spare	
68	415-420	I6	spare	
69	421-426	I6		
70	427-432	I6		
71	433-512	A80	blanks	

WSC fast delivery product - catalogue definition

Each record is composed of 10 sub-records, each one being able to contain the information relatives to one product.When a sub-record is empty -which is only possible in the last record-, it is filled with blanks.

TABLE 3.3 CATALOGUE RECORD DEFINITION

FIELD	BYTES	FORMAT	DESCRIPTION	CONTENT
1	1-4	B4	sequence number	(n)
2	5	B	1st subtype	(10)
3	6	B	Type code	(11)
4	7	B	2nd subtype	(33)
5	8	B	3rd subtype	(50)
6	9-12	B4	record length	(1660)
7	13-16	I4	second sequence number Incremented at each record, updated to 1 every time the record type changes	
8	17-20	I4	number of catalogue data per record = 10 maxi	
			.....	
9	21-30	F10.4	dataset ident	
10	31	I1	raw data quality indicator From 0 (best quality) to 9 (worst quality)	
11	32-37	F6.2	SW latitude in degrees. A negative value denotes south latitude and a positive value, north latitude.	
12	38-43	F6.2	SW longitude In degrees (ie : 0.00 -360.00 from Greenwich to East)	
13	44-49	F6.2	SE latitude	
14	50-55	F6.2	SE longitude	
15	56-61	F6.2	NW latitude	
16	62-67	F6.2	NW longitude	
17	68-73	F6.2	NE latitude	
18	74-79	F6.2	NE longitude	
19	80-82		orbital cycle number	
20	83	A1	orbital sense A = Ascending D = Descending	

TABLE 3.3 CATALOGUE RECORD DEFINITION (Cont'ed)

FIELD	BYTES	FORMAT	DESCRIPTION	CONTENT
21	84-87		orbit number in the cycle varying from 1 to 43 for the 3 days repeat cycle	
22	88-92	I5	revolution number	
23	93-112	A20	start date (DD/MON/YYYY - HH:MI:SS)	
24	113-114	A2	station identifier GS = Gatineau Station ISSUE 1, REV 0 KS = Kiruna station MS = Mas Palomas Station FS = Fucino Station	
25	115-131	A17	station product identifier Corresponds to the product id present in the main product header	
26	132-133	I2	number of lines in the product	
27	134-136	I3	number of invalid points	
28	137-139	I3	number of points with 3 antennas	
29	140-142	I3	number of points with 2 antennas	
30	143-145	I3	number of points over land	
31	146-165	A20	processing date (DD/MON/YYYY - HH:MI:SS)	
32	166-169	F4.1	software version number	
33	170	I1	quality indicator From 0 (best quality) to 9 (worst quality)	
34	171	A1	ambiguity removal 0 = ambiguity removed autonomously 1 = use of meteorological table after autonomous ambiguity removal 2 = ambiguity removed by meteorological data only	
35	172-176	F5.2	maximum wind speed (M/S)	
36	177-181	F5.2	average wind speed (M/S)	
37	182-184	I3	average wind direction (degrees)	
	.....2nd sub-record.....			
38	185-xxx			

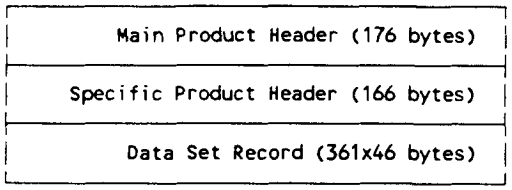
TABLE 4.1 DATA TYPE OPTION FILE - FILE DESCRIPTOR RECORD (FIXED SEGMENT) DEFINITION

FIELD	BYTES	FORMAT	DESCRIPTION	CONTENT
1	1-4	B4	Record sequence number	(1)
2	5	B1	1-st record sub-type code	(63)
3	6	B1	Record type code	(192)
4	7	B1	2-nd record sub-type code	(18)
5	8	B1	3-rd record sub-type code	(18)
6	9-12	B4	Length of this record	(16968)
7	13-14	A2	ASCII/EBCDIC flag	A$
8	15-16	A2	blanks	$$
9	17-28	A12	Format control document ID for this data file format	CEOS-LBR-CCT
10	29-30	A2	Format control document revision level	$A
11	31-32	A2	File design descriptor revision letter	$A
12	33-44	A12	Generating software release and revision level	<software.id.>
13	45-48	I4	File number	$$$2
14	49-64	A16	File name	ERS1.WSC.FDCDTOP
15	65-68	A4	Record sequence and location type flag	FSEQ
16	69-76	I8	Sequence number location	$$$$$$$1
17	77-80	I4	Sequence number field length	$$$4
18	81-84	A4	Record code and location type flag	FTYP
19	85-92	I8	Record code location	$$$$$$$5
20	93-96	I4	Record code field length	$$$4
21	97-100	A4	Record length and location type flag	FLGT
22	101-108	I8	Record length location	$$$$$$$9
23	109-112	I4	Record length field length	$$$4
24	113	A1	Reserved	blank
25	114	A1	Reserved	blank
26	115	A1	Reserved	blank
27	116	A1	Reserved	blank
28	117-180	A64	Reserved segment	blank

TABLE 4.2 DATA TYPE OPTIONS FILE
FILE DESCRIPTOR RECORD
(VARIABLE SEGMENT) DEFINITION

FIELD	BYTES	FORMAT	DESCRIPTION
29	181-186	I6	number of DATA records in the DATA FILE
30	187-192	I6	length of the above records
31	193-216	A24	spare
32	217-220	I4	number of records in a product2-nd record s
33	221-228	I8	length of a product
34	229-236	A8	spare
35	237-240	I4	number of lines in a product
36	241-244	I4	number of measures per line
37	245-248	I4	spare
38	249-254	I6	length of a line
39	255-260	I6	length of a measure
40	261-268	I8	spare
41	269-272	A4	interleaving indicator
42	273-276	I4	length of main product header
43	277-280	I4	length of secondary product header
44	281-288	I8	spare
45	289-292	I4	$$$0
46	293-296	I4	$$$0
47	297-360	A64	spare

Each DATA FILE record (one fast delivery product) has the same structure. This structure consists of three parts.



The MPH is 176 bytes long and contains information applicable the processing chain.
The specific product header is 166 bytes long and contains information specific to the processed ce

TABLE 4.3 DATA FILE RECORD DEFINITION

FIELD	BYTES	FORMAT	DESCRIPTION	CONTENT
1	1-4	B4	Record sequence number	(n)
2	5	B1	1-st record sub-type code	(70)
3	6	B1	Record type code	(11)
4	7	B1	2-nd record sub-type code	(33)
5	8	B1	3-rd record sub-type code	(50)
6	9-12	B4	Length of this record	(16968)
7	13-16	A4	blanks	
8	17-20	A4	blanks	
	MPH start			
9	21-37	A17	reserved	
10	38-38	B1	Type of Product: 8 = AMI Wind (UWI) 18 = AMI Wind Instrument Headers (EWII)	
11	39-39	B1	Spacecraft (1 = ERS-1)	
12	40-63	A24	UTC time of subsatellite point at beginning of product. Format in ASCII: "dd-mmm-yyyy hh:mm:ss.ttt"	
13	64-64	B1	Station ID, where data were processed 1 = Kiruna Station (KIR) 2 = Fucino Station (FUC) 3 = Maspalomas Station (MAS) 4 = Gatineau Station (GAT) 5 = Frascati Station (internal use)	
14	65-66	A2	reserved	
15	67-90	A24	UTC time when MPH was generated;	
16	91-94	B4	size of Specific Product Header Record in Bytes	
17	95-98	B4	number of Product Data Set Records	
18	99-102	B4	size of each Product Data Set Record in Bytes	
19	103-103	A1	reserved	
20	104-104	A1	reserved	

TABLE 4.3 DATA FILE RECORD DEFINITION (Cont'ed)

FIELD	BYTES	FORMAT	DESCRIPTION
21	105-128	A24	UTC reference time.Time relation used to convert from satellite to ground, used together with the next two fields.
22	129-132	B4	reference binary time of satellite clock (32-bit unsigned integer)
23	133-136	B4	step length of satellite clock in nanoseconds
24	137-144	A8	reserved
25	145-146	A2	Threshold table version number.
26	147-148	B2	Spare
28	149-172	A24	UTC time of ascending node state vector in earth-fixed reference system
29	173-176	B4	State vector; X 10^{-2}m
30	177-180	B4	State vector; Y 10^{-2}m
31	181-184	B4	State vector; Z 10^{-2}m
32	185-188	B4	State vector; X velocity 10^{-5}m/s
33	189-192	B4	State vector; Y velocity 10^{-5}m/s
34	193-196	B4	State vector; Z velocity 10^{-5}m/s
			end of MPH data and start of SPH data
35	197-198	B2	reserved
36	199-202	B4	Geodetic latitude of product centre. A negative value denotes South latitude positive value denotes North latitude (10^{-3}deg)
37	203-206	B4	East longitude (i.e. 0-360°) from Greenwich to East (10^{-3} deg)
38	207-210	B4	Subsatellite Track Heading w.r. to North, turning clockwise at time of product centre (10^{-3} deg)
39	211-212	B2	Mean distance between two successive along track nodes at product centre (m)
40	213-214	B2	Centre of Gravity of averaged power spectrum (forebeam) (234.4 Hz)
41	215-216	B2	"Standard Deviation" of averaged power spectrum (forebeam) (234.4 Hz)
42	217-218	B2	Centre of Gravity of averaged power spectrum (midbeam) (234.4 Hz)
43	219-220	B2	"Standard Deviation" of averaged power spectrum (midbeam) (234.4 Hz)
44	221-222	B2	Centre of Gravity of averaged power spectrum (aftbeam) (234.4 Hz)
45	223-224	B2	"Standard Deviation" of averaged power spectrum (aftbeam) (234.4 Hz) (the units in fields 40-45 result from frequency discretisation)
46	225-228	B4	I Mean Noise Power, forebeam (-2 if no beam available) (10^{-3} ADC)
47	229-232	B4	Q Mean Noise Power, forebeam (-2 if no beam available) (10^{-3} ADC)
48	233-236	B4	I Mean Noise Power, midbeam (-2 if no beam available) (10^{-3} ADC)
49	237-240	B4	Q Mean Noise Power, midbeam (-2 if no beam available) (10^{-3}ADC)
50	241-244	B4	I Mean Noise Power, aftbeam (-2 if no beam available) (10^{-3}ADC)
51	245-248	B4	Q Mean Noise Power, aftbeam (-2 if no beam available) (10^{-3}ADC)
52	249-252	B4	Internal Calibration level monitoring factor, forebeam (-2 if no beam available) (10^{-3} ADC)
53	253-256	B4	Internal Calibration level monitoring factor, midbeam (-2 if no beam available) (10^{-3}ADC)
54	257-260	B4	Internal Calibration level monitoring factor, aftbeam (-2 if no beam available) (10^{-3}ADC)
55	261-262	B2	reserved

TABLE 4.3 DATA FILE RECORD DEFINITION (Cont'ed)

FIELD	BYTES	FORMAT	DESCRIPTION
			Parameter Table ID. Details as follows:
56	263-264	B2	Global threshold Parameter Table ID
57	265-266	B2	Static parameter Parameter Table ID
58	267-268	B2	Dynamic parameter Parameter Table ID
59	269-270	B2	FRb(n) Parameter Table ID
60	271-272	B2	Torbit,ref,D Parameter Table ID
61	273-274	B2	ΦF Parameter Table ID
62	275-276	B2	ΦM Parameter Table ID
63	277-278	B2	ΦA Parameter Table
64	279-280	B2	FTb(n) Parameter Table ID
65	281-282	B2	CADC,b(n) Parameter Table ID
66	283-284	B2	Torbit,ref,N Parameter Table ID
67	285-286	B2	FN,F Parameter Table ID
68	287-288	B2	FN,M Parameter Table ID
69	289-290	B2	FN,A Parameter Table ID
70	291-292	B2	ΘN,b (j,k) Parameter Table ID
71	293-294	B2	ΦN,b (j,k) Parameter Table ID
72	295-296	B2	Meff,b (j,k) Parameter Table ID
73	297-298	B2	N (j,k) Parameter Table ID
74	299-300	B2	Sref,b (k) Parameter Table
75	301-302	B2	LAb (ir,ic) Parameter Table ID
76	303-304	B2	LZb (ir,ic) Parameter Table ID
77	305-306	B2	LNb Parameter Table ID
78	307-308	B2	MAb Parameter Table ID
79	309-310	B2	MSb Parameter Table ID
80	311-312	B2	NAF (v, ic) fore Parameter Table ID
81	313-314	B2	NAM (v, ic) mid Parameter Table ID
82	315-316	B2	NAA (v, ic) aft LUT,version
83	317-318	B2	NSF (v, ic) fore Parameter Table ID
84	319-320	B2	NSM (v, ic) mid Parameter Table ID
85	321-322	B2	NSA (v, ic) aft Parameter Table ID
86	323-324	B2	NNF (v, ic) fore Parameter Table ID
87	325-326	B2	NNM (v, ic) mid Parameter Table ID
88	327-328	B2	NNA (v, ic) aft Parameter Table ID
89	329-330	B2	lref Parameter Table ID
90	331-332	B2	aF (μ,ic) fore Parameter Table ID
91	333-334	B2	aM (μ,ic) mid Parameter Table ID
92	335-336	B2	aA (μ,ic) aft Parameter Table ID
93	337-338	B2	avF (k,ir,ic) fore Parameter Table ID
94	339-340	B2	avM (k,ir,ic) mid Parameter Table ID
95	341-342	B2	avA (k,ir,ic) aft Parameter Table ID
96	343-344	B2	ib Parameter Table ID
97	345-346	B2	Spare
98	347-348	B2	Spare

TABLE 4.3 DATA FILE RECORD DEFINITION (Cont'ed)

FIELD	BYTES	FORMAT	DESCRIPTION
99	349-350	B2	Meteo Table (compressed form) Table ID
100	351-352	B2	FN,F Update Table, Table ID (FN,F=Forebeam Normalisation Factor LUT)
101	353-354	B2	FN,M Update Table, Table ID
102	355-356	B2	FN,A Update Table, Table ID
103	357-358	B2	Wind extraction software configuration Table ID
104	359-360	B2	Spare
105	361-362	B2	Spare
	end of SPH data		
106	363-366	B4	Data record number, starting
107	367-370	B4	Geodetic latitude of Node. A negative value denotes South latitude, and a positive value denotes North latitude.(10^{-3} deg)
108	371-374	B4	East longitude from Greenwich to east(i.e. 0-360° (10^{-3} deg)
109	375-378	B4	σ° of forebeam (if beam not available then set to -999 999 999) (10^{-7} dB)
110	379-380	B2	incidence Angle for forebeam (0.1 deg)
111	381-382	B2	look Angle of forebeam clock- wise w.r.t. North at grid point
112	383-383	B1	Kp Value of forebeam (%)
113	384-384	B1	Counter of forebeam corrupted or missing source packets
114	385-388	B4	σ° of midbeam (if beam not available then set to -999 999 999) (10^{-7} dB)
115	389-390	B2	Incidence Angle of midbeam (0.1 deg)
116	391-392	B2	Look Angle of midbeam clock- wise w.r.t. North at grid point (0.1 deg)
117	393-393	B1	Kp Value of midbeam (%)
118	394-394	B1	Counter of midbeam corrupted or missing source packets
119	395-398	B4	σ° of aftbeam (if beam not available then set to -999 999 999) (10^{-7} dB)
120	399-400	B2	Incidence Angle of aftbeam (0.1)
121	401-402	B2	Look Angle of aftbeam clockwise w.r.t. North at grid point (0.1 deg)
122	403-403	B1	Kp Value of aftbeam (%)
123	404-404	B1	Counter of aftbeam corrupted or missing source packets
124	405-405	B1	Wind speed (set to 255 if wind extraction is not possible) (0.2 m/s)
125	406-406	B1	Wind direction with respect to North turning clockwise at grid point (set to 255 if wind extraction is not possible) (2 deg)
126	407-408	B2	reserved
	repeat fields 106-126		

TABLE 5.1 NULL VOLUME DESCRIPTOR RECORD

FIELD	BYTES	FORMAT	DESCRIPTION	CONTENT
1	1-4	B4	Record sequence number	(1)
2	5	B1	1-st record subtype code	(192)
3	6	B1	Record type code	(192)
4	7	B1	2-nd subtype code	(63)
5	8	B1	3-rd subtype code	(18)
6	9-12	B4	Length of this record	(360)
7	13-14	A2	ASCII/EBCDIC flag	A$
8	15-16	A2	blanks	$$
9	17-28	A12	format control document	CCB-LBR-0001
10	29-30	A2	Superstructure format control document	A$
11	31-32	A2	Superstructure record format revision	A$
12	33-44	A12	Logical volume generating facility software release and revision level	<software.id.>
13	45-60	A16	ID of physical volume containing this volume descriptor	<physical.tape.id.>
14	61-76	A16	Logical volume identifier	<logical.set.id.>
15	77-92	A16	Volume set identifier	<volume.set.id.>
16	93-94	I2	Total number of physical volumes in the logical volume	$1
17	95-96	I2	Physical volume sequence number of the first tape within the logical volume	$1
18	97-98	I2	Physical volume sequence number of the last tape within the logical volume	$1
19	99-100	I2	Physical volume sequence number of the current tape within the logical volume	$1
20	101-101	I4	First referenced file number in this physical volume whithin the logical volume.	$$$1
21	105-108	I4	Logical volume within a volume set	$$$1
22	109-112	I4	Logical volume number within physical volume	$$$1
23	113-120	A8	Logical volume creation date (YYYYMMDD)	<YYYYMMDD>
24	121-128	A8	Logical volume creation time (hhmmssdd, dd=deci-seconds)	<hhmmssdd>
25	129-140	A12	Logical volume generation country	<country..>
26	141-148	A8	Logical volume generating agency	<agency..>
27	149-160	A12	Logical volume generating facility	<facility.>
28	161-164	I4	Number of file pointer records in volume directory	$$$0
29	165-168	I4	Number of records in volume directory	$$$1
30	169-260	A92	Volume descriptor spare segment (always blank filled)	(blanks)
31	261-360	A100	Local use segment	(blanks)