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Record Structure for the Standard Catalog Information Exchange

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Record of modification

Ed.	Rev	Date	Modification reasons	Modified or added pages
1	0	04/08/93	Original Edition	
1	1	29/08/95	• Catalogue Record Description, fld# 65 to 70 Add of the Parameter name : Shift Along the Track (SAT) • Catalog Field Description : add of SAT	p.i2, i3 p. 3 p. 8 et 8.1
2	0	02/11/04	• Adding of radiometric information o Document Reference change for compliance with the Spot Images's technical schema (old ref. : S4-CI-C/E-1625-SI)	p. i2, i3 p. 8, 9, 10, 11

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Scope

This document describes the format and the structure of the standard catalog record which contains all the useful information about a given SPOT scene. This record will be used for exchange of catalog information within the SPOT group as well as to the SPOT customers, regardless of the medium used.

This specification is consistent with the capacity of the DALI system. It is used as a format specification for the "products from catalog

Applicable documents

[1] International Standard ISO 6709 : Standard representation of latitude, longitude and altitude for geographic point locations - First edition, 1983-05-15.

Catalog Record Description

Catalog Record Structure

fld#	Byte#	fld. length	Parameter name
1	1 to 21	21	Scene ID
2	22 to 22	1	Blank
3	23 to 30	8	Latitude Scene Center
4	31 to 39	9	Longitude Scene Center
5	40 to 40	1	/
6	41 to 48	8	Latitude Upper Left Corner
7	49 to 57	9	Longitude Upper Left Corner
8	58 to 58	1	/
9	59 to 66	8	Latitude Upper Right Corner
10	67 to 75	9	Longitude Upper Right Corner
11	76 to 76	1	/
12	77 to 84	8	Latitude Lower Left Corner
13	85 to 93	9	Longitude Lower Left Corner
14	94 to 94	1	/
15	95 to 102	8	Latitude Lower Right Corner
16	103 to 111	9	Longitude Lower Right Corner
17	112 to 112	1	/
18	113 to 117	5	Scene Orientation
19	118 to 118	1	Blank
20	119 to 123	5	Incidence Angle
21	124 to 124	1	Blank
22	125 to 129	5	Sun Azimuth
23	130 to 130	1	Blank
24	131 to 135	5	Sun Elevation
25	136 to 136	1	Blank
26	137 to 137	1	Number of Cloud Cover quotes
27	138 to 138	1	Blank
28	139 to 146	8	Cloud Cover quotes
29	147 to 147	1	Blank
30	148 to 148	1	Max. of Cloud Cover quotes
31	149 to 149	1	Blank
32	150 to 150	1	Average of Cloud Cover quotes
33	151 to 151	1	Blank
34	152 to 152	1	Number of Snow Cover quotes
35	153 to 153	1	Blank
36	154 to 161	8	Snow Cover quotes
37	162 to 162	1	Blank
38	163 to 163	1	Number of Scene Quality quotes
39	164 to 164	1	Blank
40	165 to 168	4	Scene Quality quotes
41	169 to 169	1	Blank
42	170 to 170	1	Aver. of Scene Quality quotes
43	171 to 171	1	Blank

44	172 to 175	4	Gains
45	176 to 176	1	Blank
46	177 to 177	1	Technological imaging flag
47	178 to 178	1	Blank
48	179 to 180	2	Mirror Step
49	181 to 181	1	Blank
50	182 to 182	1	Stereo Pair Status
51	183 to 183	1	Blank
52	184 to 184	1	Imaging Configuration
53	185 to 185	1	Blank
54	186 to 186	1	Quick Look Type
55	187 to 187	1	Blank
56	188 to 190	3	Revolution Number
57	191 to 191	1	Blank
58	192 to 192	1	Minimum Shift Allowed
59	193 to 193	1	Blank
60	194 to 194	1	Maximum Shift Allowed
61	195 to 195	1	Blank
62	196 to 205	10	Segment ID
63	206 to 206	1	Blank
64	207 to 207	1	Deletion / Modification Status
65	208 to 208	1	Blank
66	209 to 209	1	Shift along the track value
67	210 to 215	6	Reserved. Must be set to blanks
68	216 to 217	2	Archiving station
69	218 to 218	1	Blank
70	219 to 219	1	Number of spectral bands
71	220 to 220	1	Blank
72	221 to 221	1	Number of bands for the quick look
73	222 to 222	1	Blank
74	223 to 227	5	Saturated pixels for band 1
75	228 to 228	1	Blank
76	229 to 233	5	Saturated pixels for band 2
77	234 to 234	1	Blank
78	235 to 239	5	Saturated pixels for band 3
79	240 to 240	1	Blank
80	241 to 245	5	Saturated pixels for SWIR band
81	246 to 246	1	Blank
82	247 to 249	3	Minimum threshold for band 1 dynamic stretching
83	250 to 250	1	Blank
84	251 to 253	3	Minimum threshold for band 2 dynamic stretching
85	254 to 254	1	Blank
86	255 to 257	3	Minimum threshold for band 3 dynamic stretching
87	258 to 258	1	Blank

88	259 to 261	3	Minimum threshold for SWIR band dynamic stretching
89	262 to 262	1	Blank
90	263 to 265	3	Maximum threshold for band 1 dynamic stretching
91	266 to 266	1	Blank
92	267 to 269	3	Maximum threshold for band 2 dynamic stretching
93	270 to 270	1	Blank
94	271 to 273	3	Maximum threshold for band 3 dynamic stretching
95	274 to 274	1	Blank
96	275 to 277	3	Maximum threshold for SWIR band dynamic stretching
97	278 to 278	1	Blank
98	279 to 304	26	Segment usual name99 305 to
305	1	CR (Carriage Return)	
100	306 to 306	1	LF (Line Feed)

Total **306**

Catalog field descriptions

(1) The field names are listed in order of appearance, giving the record number where they appear in the file, their format and their description. The presentation of numeric data and the number of decimals are illustrated in the examples given by the values between brackets. These values also give the maximum and minimum values the parameters can take.

(2) The ASCII blank characters are noted with a 'b'.
In the following, the conventions used to describe the rule for field encoding are those of ANSI X 3.9 - 1978 Standard for Programming Language FORTRAN.

SCENE ID : Field #1 / I1,2I3.3,6I2.2,I1,A1
The scene identificator for this record, coded as follows:
- SPOT satellite number [1 to 9]
- GRS ID : KKK [001 to 738]
  JJJ [009 to 691]
- date of scene center YYMMDD
  YY : the last two digits of the year [86 to 99, then 00, 01, 02, etc]
  MM : the month number [01 to 12]
  DD : the day number within the month [01 to 31]
- GMT time of scene center HHMMSS
  HH : the hour [00 to 23]
  MM : the minutes within the hour [00 to 59]
  SS : the seconds within the minute [00 to 59]
- HRV number [1 or 2]
- Spectral Mode [P or M or X or I]

GEOGRAPHIC COORDINATES : Fields #3, 4, 6, 7, 9, 10, 12, 13, 15, 16
The geographic coordinates for the center point of the scene as well as the ones for the four corners of the scene will follow the same format: longitude and latitude are expressed in signed decimal degrees and are encoded according to the convention defined in Applicable Document [2].

LONGITUDE /F9.4
Positive sign towards the East, negative sign towards the West
[-180.0000 to +179.9999]

LATITUDE /F8.4
Positive sign towards the North, negative sign towards the South
[-90.0000 to +90.0000]

SCENE ORIENTATION : Field #18 /F5.1
Orientation angle of the scene: for conventions, see Applicable Document [1], page A-07-4.
[0.0 to 360.0]

INCIDENCE ANGLE : Field #20 /F5.1
Angle of incidence: for conventions, see Applicable Document [1], page A-07-4.
[-90.0 to +90.0]

SUN AZIMUTH : Field #22 /F5.1
Azimuth of the sun direction (positive eastward from north) expressed in degrees.
[0.0 to 360.0]

SUN ELEVATION : Field #24 /F5.1
Sun elevation expressed in degrees (negative elevation may happen for certain winter scenes in polar zones).
[-90.0 to +90.0]

NUMBER OF CLOUD COVER QUOTES : Field #26 /I1
The number of cloud cover quotes for this scene. This number may take the values:
4 if the quotation is performed by quadrant,
8 if the quotation is performed by 1/8 of scene.
[4 or 8]

CLOUD COVER QUOTES : Field #28 /4A1, 4X or 8A1
Cloud cover value of the scene expressed:
- either for each quadrant in the following order: upper left , upper right, lower left, lower right (4 values followed by 4 blanks),
- or for each 1/8 of scene, in the following order: upper left row, upper right row, 2nd left row, 2nd right row, 3rd left row, 3rd right row, lower left row, lower right row (8 values).

Two possible conventions:
- [0] <10%, [1] 10-25%, [2] >25%
- [A] no cloud, [B] 0-10%, [C] 10-25%, [D] 25-75 %, [E] >75%

Irrespective of the convention, the value [*] may be assigned to a quadrant or a 1/8 of scene. This value indicates that there was not enough image lines in the block for quotation. This may occur for the first "incomplete" scene or the last "yncomplete" scene of a segment.

MAX. OF CLOUD COVER QUOTES : Field #30 /A1
The maximum value of the 4 or 8 quotes of field #28.
[0 to 2] or [A to E] or [*]. The value [*] denotes that all the 4 or 8 cloud cover quotes are equal to [*]

AVERAGE OF CLOUD COVER QUOTES : Field #32 /A1
The average of the 4 or 8 quotes of field #28, rounded to the closest integer. When the alphabetic convention is used, the letters are converted to integer (A ----> 0, B ----> 1, etc...) to compute the average, and the result is converted back into a letter. The quotes equal to [*] are not taken into account for this computation.
[0 to 2] or [A to E] or [*]

NUMBER OF SNOW COVER QUOTES : Field #34 /I1
The number of snow cover quotes for this scene. This number may take 3 values:
1 if there is a single quotation for the scene,
4 if the snow quotation is performed by quadrant,
8 if the snow quotation is performed by 1/8 of scene,
blank if not used.
[1 or 4 or 8 or b]

SNOW COVER QUOTES : Field #36 /A1, 7X or 4A1, 4X or 8A1
One value (0 for "no snow", or 1 for "snow") per scene, or per quadrant, or per 1/8 of scene. Same sequential order as for cloud cover quotes. Equal to blank if not used.
[0 or 1 or b or *] See "CLOUD COVER QUOTES" for the meaning of the value [*]

NUMBER OF SCENE QUALITY QUOTES : Field #38 /I1
The number of scene quality quotes for this scene. This number may take 2 values :
1 if there is a single quote for the whole scene,
4 if the quotes are assigned per 1/4 of scene (the scene being split into 4 "horizontal" stripes).
[1 or 4]

SCENE QUALITY QUOTES : Field #40 /A1, 3X or 4A1
The technical quality of the scene expressed with the following conventions:
- either a single quote for the whole scene,
- or 4 quotes in the following order : upper 1/4 of scene stripe, 2nd 1/4 of scene stripe, 3rd 1/4 of scene stripe, lower 1/4 of scene stripe.
[E] = Excellent
[G] = Good
[P] = Poor
[U] = Unusable
[*] = There was no image lines in the stripe to evaluate the technical quality.
This may occur for the first "incomplete" scene or the last "incomplete" scene of a segment.

AVER. OF SCENE QUALITY QUOTES : Field #42 /A1
Either equal to the scene quality quotes when the number of scene quality quotes equals 1,
or equal to the average of the 4 scene quality quotes (using same method as for average of cloud cover quotes).
[E or G or P or U or *]

GAINS : Field # 44 /I1, 3X or 3I1, 1X or 4I1
Value of the gain number for each spectral band P, XS1, XS2, XS3 or MIR.
- When Panchro or B2 10m SPOT 4: one single value (format I1, 3X),
- when Multispectral: 3 values for XS1, XS2 and XS3 (format 3I1, 1X),
- when SPOT 4 with MIR: 4 values for B1, B2, B3 and MIR (format 4I1).
[0 to 8] (for each value)

TECHNOLOGICAL IMAGING FLAG : Field #46 /A1
0 for standard imaging,
1 for special imaging done for technological purpose (the image may not match any standard criteria),
blank if not used.
[0 or 1 or b]

MIRROR STEP : Field #48 /I2
The value of the mirror step of the HRV when imaging the scene.
[3 to 93]

STEREO PAIR STATUS : Field #50 /A1
Indicates if this scene belongs to a stereo pair.
1 if yes,
blank if unknown.
[1 or b]

IMAGING CONFIGURATION: FIELD #52 /A1
D for "dual mode" (this HRV was imaging in P and XS mode at the same time - SPOT 1, 2 or 3 only),
T for "twin mode" (the two HRVs were operating in twin mode),
I for "independant" (the two HRVs were operating independently from each other),
blank, if unknown
[D or T or I or b]

QUICK LOOK TYPE : Field #54 /A1
The type of the existing Quick Look:
P for photographic,
D for digital,
V for video,
N for "no quick look",
blank if unknown.
[P, D, V, N or b]

REVOLUTION NUMBER : Field #56 /I3
Orbit number within this orbital cycle.
[001 to 369]

MINIMUM SHIFT ALLOWED : Field #58 /A1
Indicates the minimum value of the shift along track which can be applied to this scene for production purposes. This shift is expressed in 1/10 of a scene (i.e. 600 raw lines in Panchromatic, or 300 raw lines in Multispectral), truncated to the lowest integer. With the exception of the first and the last "incomplete" scenes of segment, this value is set to zero. The value is set to "*" if the scene cannot be used for production (number of useful lines too small in the first "incomplete" scene of a segment, or last "incomplete" scene of a segment).
[0 to 9, or *]

MAXIMUM SHIFT ALLOWED : Field #60 /A1
Indicates the maximum value of the shift along track which can be applied to this scene for production purposes. This shift is expressed in 1/10 of a scene (i.e. 600 raw lines in Panchromatic, or 300 raw lines in Multispectral), truncated to the lowest integer. With the exception of the first and the last "incomplete" scenes of segment, this value is set to 9. The value is set to "*" if the scene cannot be used for production (number of useful lines too small in the first "incomplete" scene of a segment, or last "incomplete" scene of a segment).
[0 to 9, or *]

SEGMENT ID : Field #62 /I10
Field reserved for internal use.

DELETION/MODIFICATION STATUS : Field #64 /A1
This is a control flag which is used for indicating the actions to be taken on this specific scene in case of deletion or modification of the information. This is used when it is needed to maintain the consistency between the master catalog and duplicate catalogs.
This flag may take the values [b], [D] or [M].
[b]: no action to be taken,
[D]: the scene does not exist any longer and its references have been deleted from the master catalog. Therefore, it has to be removed from the duplicate catalogs,
[M]: the information related to the scene has been modified in the master catalog. The new information which is in this record must supersede the old information in the duplicate catalogs.
[b or D or M]

SHIFT ALONG THE TRACK (SAT) VALUE : field #66 /A1
Indicates the value of the shift along the track which is applied to the original (same scene ID = Field 1, not shifted) scene for production purposes. This shift is expressed in 1/10 of a scene (i.e. 600 raw lines in Panchromatic, or 300 raw lines in Multispectral), truncated to the lowest integer.
[0] or [b] : the scene is not shifted : it is a GRS scene
[1] to [9] : the original scene is shifted. The location fields (#3 to 16) and the notation fields (#26 to 42) correspond to the SHIFTED scene. The other fields have the same value than for the original scene.

ARCHIVING STATION : Field #68 /2A1
Station where the scene is archived, not necessarily where it was recorded.
[TT] = Toulouse,
[KK] = Kiruna,
[PP] = Prince Albert,

[PQ] = TS5 Prince Albert,
[GG] = Gatineau,
[bb] = station name unavailable,
... = may take more values as other stations become operational.

NUMBER OF SPECTRAL BANDS : Field #70 /I1
is the number of bands related to the sensor :

[1] : when Panchro or B2 10m SPOT 4 or Stereo SPOT 5
[3] : when Multispectral
[4] : when SPOT 4/5 with MIR

NUMBER OF BANDS FOR THE QUICK LOOK : Field #72 /I1
is the number of bands available for the quick look of the scene.

This value is usually equal to the NUMBER OF SPECTRAL BANDS. However, it may happen that only one band is available for a multispectral quick look. This information is set to zero when no digital quicklooks is available (case of photographic quick look).

[0 or 1 or 3 or 4]

SATURATED PIXELS FOR BAND i : Fields #74, 76, 78, 80 /F5.1 or 5X
is the percentage of saturated pixels (value 255) into the first band.

This information is posted when a digital quick look is available for the band i. Otherwise, this field is left to blank.

“band i” is a generic name for band 1, band2, band 3 or SWIR band.

Blank if no digital quicklook is available for this band
[0 to 100.0]

MINIMUM THRESHOLD FOR BAND i DYNAMIC STRECHING : Fields #82, 84, 86, 88 /I3 or 3X
is the value of the lowest threshold used for streching the dynamic of the band i of the quick look. All pixels with values below this threshold in the original quicklook are forced to 0 into the adapted quicklook. The adaptation is performed by dropping 2% of the pixels having lowest values.

This information is posted when a numeric quicklook is available for the band i. Otherwise, this field is left to blank.

"band i" is a generic name for band 1, band2, band 3 or SWIR band.

Blank if no numeric quicklook available for this band
[0 to 255]

MAXIMUM THRESHOLD FOR BAND i DYNAMIC STRETCHING: Fields #90, 92, 94, 96 /I3 or 3X
is the value of the upper threshold used for streching the dynamic of the band i of the quick look. All pixels with values beyond this threshold in the original quicklook are forced to 255 into the adapted quicklook. The adaptation is performed by dropping 2% of the pixels having the highest values.

This information is posted when a numeric quicklook is available for the band i. Otherwise, this field is left to blank.

"band i" is a generic name for band 1, band2, band 3 or SWIR band.

Blank if no digital quicklook is available for this band
[0 to 255]

SEGMENT USUAL NAME : Field #98 /26A1
Usual name of the segment the scene belongs to. This identifier is assigned by the DALI catalogue (for internal use only).

This information is always available.