International Data Exchange Format (IDF)

Description of a Data Interface Specific to
International Data Exchange Purposes -

Version 3.31

BfS-SW2 Freiburg, MUF RP Mainz

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                          3. support for emission balancing measurements
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                    2.3.11 code for “site no longer valid”,
                    supplements 5. and changing “total”DOMs, 6., 7.
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                    (attention 27x/41x s.V5.20):
                    all DOMs from 3.0x/3.1 are longer valid !
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V 3.25 – 2009/13/4 – suppl. 4._List_of.., 2.3.11.2 UTM-dezimal example
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naming for positions 10, 11 and 14 of format description, 2.3.10. corrected: naming
of characteristic values (detection limit, decision threshold) according to ISO
11929, values reported so far are in accordance with the changed naming (former
naming might be misleading). 3.3.1: suppl. 5.: 665,806,807
```

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1. Introduction

This document describes a data interface which has been developed to exchange radiological data between the French IRSN (OPRI) in Paris and the section Emergency Management (SW2) of Federal Office for Radiation Protection (BfS) in Freiburg, Germany. The radiological data provided by the BfS are transmitted by the KFUe systems of the German federal Laender Rheinland-Pfalz and Baden-Wuerttemberg by means of the format indicated and also by the German dose rate network of BfS, the French dose rate network of IRSN and the network of Swiss ENSI. In addition the use of this general purpose interface to interconnect the German nuclear power plant control systems (KFUe-Systeme), the REA systems for recording emission data of nuclear facilities, the dose rate networks of German federal Laender, the IMIS system, the German implementation of RODOS and the German aero-spectrometry systems is appointed.

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2. Data Exchange Format

In addition to communication protocols a data exchange format has been developed to provide a flexible mechanism for the transfer of data with almost no overheads.
The International Data exchange Format (IDF) provides definitions to permit the exchange of radiological and certain meteorological data. At present the data format permits the transport of mainly continuously sampling monitoring systems with fixed sampling periods.
The format version 3.0 or higher supports the exchange of monitoring data and off-line sampling system data for balancing from the NPP controlling measurement systems.
The format version 3.1 includes supplements to code the results of aero-spectrometry with helicopters and airplanes implemented by BfS and DWD. It is backward compatible to v. 3.0.

Furthermore, the transport mechanism can be used to transfer free formatted text and alert in notifications messages and can be used for test transmission purposes. Further extensions are possible by means of simply expanding the range of keywords and adding encoding and decoding modules.
There are, however, no inherent limitations. In principle all IMIS-relevant data including grid data can be exchanged by means of this format providing a maximum level of information with a minimum of data volume.

In future releases the line and field coding of V.3 information types should not be changed. In case of future supplements of IDF information types it is recommended to ignore files with unknown file extensions (s. 2.1.1) or sections with unknown keyword lines (s. 2.1.3) for forward compatibility of conversion software.

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2.1. The Structure for Data Exchange

Measured values and appropriate information will be exchanged by means of data files which are formatted according to the following rules:

- The name of the data file must contain specific information about the transmitter and the receiver and include a time stamp code.
- The file extension must define the main kind of data to be transferred.
- The file starts with a header and contains one (optional more) sections indicated by a key word corresponding to the kind of following information to be transferred.
- The file ends with an EOF character sequence.

2.1.1. The File Naming Rules

The file name is normally not a format specific parameter and should be agreed between sender and receiver as part of transfer procedure.
The following description is a recommendation includes the sender, receiver and time of information (s. header information 2.1.2).

The primary type of information to be transported is coded in the file extension as follows:

```
data files containing measured values                *.DAT
data files containing IDF location table             *.SID
data files containing aero-spectrometry results      *.AER
data files containing only free formatted text       *.TXT
data files containing alert notifications            *.ATN
data files for communication test purposes           *.TST .
```

The files indicated by DAT, ATN and TST may include any different sections (s. 2.1.3).
The AER and SID file may include TEXT sections.
For example, a file primary containing measured values (*.DAT) can include site ID information indicated by a keyword line.

It is possible to use '_' for substitution of characters in the rule as "wildcard" to handle special transmission functions (e.g. to provide a file to several receivers).

The identification code of the sender is located in the first 3 bytes (followed by point), of receiver in the second 3 bytes which are followed by a 4 byte sequence identifying the day of month (2 bytes) and the point in time within an hourly period (UTC) at which the transmitter has prepared the data file to be sent and followed by 1 byte counter (1,2,.. -0) for up to ten files for this hourly period.
The 3-byte, address-specific identification code is formed as follows:

- The first 2 characters contain the country code as shown in Table 3. which is derived from the ISO 3166.
- The last byte contains information on the different networks specific to the different participating countries. With regard to the German radiological networks, the first row of Table 4. lists specific identification codes.

It is possible to use '_' for substitution of characters in the rule as "wildcard" to handle special transmission functions (e.g. to provide a file to several receivers).

In accordance with these definitions, a file containing measured data which has been gathered for example by the KFUe system of the Land Rheinland-Pfalz at 1 o'clock UTC on the 16th day of the current month and is to be transmitted to the BfS-Freiburg, will be named as follows:

```
DEg.DEA16011#<Comment>.DAT
DE              Germany
  g             KFUe system of the Land Rheinland-Pfalz
    DE          Germany
      A         BfS - Freiburg
       16       16th day of the current month
         01     1 o'clock
           1    first file in this hour
            #   optional: indicates begin of comment
             .DAT  extension: containing measured values
```

^

2.1.2. File Header

The first line of the file-header contains information on source and destination of, and the time at which a complete dataset has been composed for transmission. The source and destination data has to be coded as described in Chapter 2.1.1.
The last 3 bytes indicate the version and release of IDF.
The time data has a precision to a level of minutes. The four elements of the first line of the header have to be separated by blanks.

Example:

```
DEA ITJ 9505162347 302
DE                      sender:          Germany
  A                     organization:    IAR
    IT                  destination country:    Italy
      J                 dest. organ.     JRC
        950516          date:            16.05.1995
              2347      time:            23:47
                   302  IDF version 3 release 02
```

^

2.1.3. Keyword line

The second line of the file describes the kind of information in the following section (keyword line). Currently 3 types of information are included:

keyword	*type of information*
DATA	measurement results (fixed line structure)
SITE	location table information (fixed line structure)
TEXT	free text
AERO	aero-spectrometry results (fixed line structure)

A prefix describes optional in the beginning of keyword line separated by 'Blank' the urgency of following information.

keyword	*information prefix*
ATTN	alarm (for example early warning notification)
TEST	for test purposes

example: `TEST DATA - Data information for testing`

Sections with different types of information may be coded in one file, each section beginning with a keyword line (for example to append the site information as SITE section behind the DATA section in a *.DAT file, s. 2.1.1).

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2.1.4. End of file

The code sequence "ZZZZZ" indicates the end of the file.

2.1.5. Byte Range Limitation

The byte range for the transmitted information is limited to values within the range of x = 10 (LF) , x = 13 (CR) and 32 <= x <= 127 (7 BIT ASCII).

^

2.2. Line Coding

The following rules define the coding of measurement result and site id information lines:

- The order of fields is fixed.
- If it is necessary to use an optional field in order after unused optional field a '*' (wild card) should indicate this unused field(s).
- The field separator characters are blank characters (' '). Two and more blank characters between fields are the same then one.
- Comments are start with '!' and may be placed:
  - either at the beginning of a line or
  - at the end of a line - following e.g. the measurement result information.

The structure of free text, test or alert-messages are no restricted.
^

2.2.1. Measurement Results

Measurement results indicated by the keyword line 'DATA' are fields ordered and formatted as described in the table below:

posit.	*format description*
1.	<country (2)>
2.	<site ID (5)>
3.	<time of measurement (10)>
4.	<time key (1-4)>
5.	<description of measurement (3)>
6.	<measured value (1-9)>
7.	<status (0-3)>
8.	<measured error (0-9)>
9.	<individual/nuclide (0-6)>
10.	<minimum decision threshold (0-9)>
11.	<maximum decision threshold (0-9)>
12.	<comment for balancing (0-40)>
13.	<time period [s] (0-8)>
14.	<maximum detection limit (0-9)>

Syntax comments:

- number of bytes in brackets:
  - >0 : obligation number of bytes
  - range 0-x or 0/x: optional “up to” or ”or” x bytes, in case of 0 and following fields a ´*´ is necessary on this position
- The individual elements of a measurement result line are separated by one (ore more) blank character(s).
- The line must end with <CR>+<LF> or <LF>. Comments may be appended to the end of a measurement result line (see 2.2.).
- A wild card ´*´ indicates the unused position of field (normally to fix the defined position of a used field behind this).

Result Line Example:

```
DE g0121 9512011330 3 101 +1.10e-01 0 1.00e-02
DE           Germany
g0121        site: 0121/KFUe-RP
951201       01.12.1995
1330         13:30:00
3            end of period, UTC
```

```
101           gross dose rate, 10min
+1.10e-01     0.11 µGy/h
0             verified: correct
1.00e-02      +/- 0.010 µGy/h
```
^

2.2.2. Site ID information

If the keyword 'SITE' indicates subsequently listed site information, the next line(s) is (/are) formatted as fields shown below:

posit.	*format description*
1.	<site ID(5)>
2.	<geo key (1-2)>
3.	<first geo string (0-15)>
4.	<second geo string (0-10)>
5.	<altitude [m] (0-9)>
6.	<location Name (0-50)>
7.	<country (0/2)> .

See syntax comments under 2.2.1.

2.2.3. Transmission of Free Formatted Messages

With regard to the transmission of alert notifications, free text messages or test message restrictions are made solely on the basis of the conventions described in Chapters 2.1.1, 2.1.2 and 2.1.3, where keywords are defined to identify the main message type through filenames (extensions) and through Keyword. Free formatted text messages are not subject to any further restrictions regarding the information element of a transmitted message.
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2.2.4. Aero-spectrometry results

If the keyword 'AERO' indicates subsequently listed aero-spectrometry results, the next lines are fixed formatted as shown below:

line number	*posit.*	*format description*
1.	1.	<country (2)>
	2.	<site ID(5)>
	3.	<geo key (1-2)>
	4.	<start point: first geo string (6-13)>
	5.	<start point: second geo string (0-10)>
	6.	<UTC time of measurement begin (10)>
	7.	<UTC time of measurement end (0/10)>
	8.	<status (0-3)>
	9.	<location Name (0-50)>
2.		X+1 repetitions (X=[0..19]) of:
	2X+1.	<description of measurement (3)>
	2X+2.	<individual/nuclide (0-6)>
Y. (Y=[3..n]) :		
	1.	<delta t [s] (1-5)>
	2.	<first geo string (6-13)>
	3.	<second geo string (0-10)>
	4.	<altitude [m] (0-4)>
	5.	<distance [m] (0-5)>
	2X+6.	<measured value indicated line 2.pos.2X+1 (1-9)>
	2X+7.	<measured error indicated line 2.pos.2X+1 (0-9)>

The known aero-spectrometry measurements have not more than 20 different individuals per line (line 2.) and fewer than 10.000 measurement result lines (Y.).
See more syntax comments under 2.2.1.
The site ID indicates the used aero spectrometry measurement system beginning with 'I' or 'F' (s. 2.3.2 and 4.).
Some special text information from the spectrometry system could be insert as preamble or behind the AERO section as TEXT section.
The status information is valid for the whole AERO section. This implies a validation procedure witch should delete all incorrect result lines.
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2.3. Field Coding

2.3.1. Country ID

As described in Chapter 2.1.1, the 2 byte country-ID keywords correspond with the ISO 3166 code (s. 3.).
^

2.3.2. Site ID

Each individual measurement site is indicated in a string of 5 bytes in length.
The first byte represents the country-specific national network identification character. The following four characters represent the identification for the measurement sites of the above-mentioned network (see for example Table 4., column 1).
example:
Z0245 - Site-ID of the German ODL network
I000A - BfS helicopter aero spectrometry system A

Note: site identification is 3 dimensional: different altitudes (s. 2.3.12) should have different Site IDs.
Mobile sites are indicated with the first character 'M', which follows with in the same file site ID information (s. 7.).
^

2.3.3. Time of Measurement

The time of measurement is default based and refers to UTC time (s. 2.3.4) and is expressed in a 10 byte array:

```
YYMMDDhhmm
          YY    year (01.01.1970 - 31.12.2069)
          MM    month
          DD    day
          hh    hour
          mm    minute
```

^

2.3.4. Time key

This 'time key' describes two different information: Measurement Period Orientation Key and Time Zone Code.
Depending on the network-specific philosophy, the time of measurement (reference date & time of measurement) can relate to the beginning, the middle or to the end of the measurement period. Due to this, the time of measurement code has to be specified in one character:

time of measurement code description
1 - time relative to the beginning of the measurement period
2 - time relative to the middle of the measurement period
3 - time relative to the end of the measurement period

The default Time Zone is UTC. Optionally numerical index specifies the time offset compared to UTC time or 3 additional characters indicate another World Time Zone.

```
UTC or GMT or no indication - Greenwich Mean Time (+/-0)
GDT - Greenwich Mean Daylight Saving Time   (0/+1)
CET or +1 - Central European Time           (+1)
CDT - Central European Daylight Saving Time (+1/+2)
EET or +2 - Eastern European Time           (+2)
EDT - Eastern European Daylight Saving Time (+2/+3)
```

for example:

```
'1+1'  equals '1CET'
'2'    equals '2UTC'
'1+1'  differs, in summer, from '1CDT'
```

^

2.3.5. Description of measurement

The description of measurement is encoded by a 3 byte number (s. 5.: List of measurement descriptions).

^

2.3.6. Measured value

Inclusive of the leading character, measured values are written in a up to 9 character array in floating point or exponential notation.

for example:

```
+345.67
+1.10E+07
 2.10E-03
```

Measured values below the detection limit of the monitoring system are indicated by the leading character '<'

for example `<1.17E+01`

^

2.3.7. Measured error

The errors normally as absolute measured errors are written in a up to 9 character array in floating point or exponential notation as for measured values.
The relative measured errors are written in floating point notation with appended '%'.

for example

```
absolute measured errors:     345.67
                             1.10E+07
Or measured error below:    <1.00E-01
relative measured error:     12.6%
```

^

2.3.8. Individual Nuclides

For the identification of measured object of nuclide-specific measurements, a max. 6 byte character array contains information as shown in the Table 6.
Examples:

```
SR90         Strontium  90   (no isomeric state)
AG110M       Silver    110m
```

^

2.3.9. Status

A numerical status may added as an optional conditional description to each measurement result line. This status is formatted as up to 3 byte numerical information.
If existing special exchange procedures between participants two additional numbers may be agreed upon as a private detail description appended to the first status byte.

Coded status information for the first byte:

```
      no status or 0 - verified: correct
                   1 - unverified
                   2 - verified: incorrect
                   3 - status update: correct
                   4 - status update: incorrect
                   9 - exercise or test data
```

Example: 211 - verified: incorrect, 11 is an optional private description

2.3.10. Options for emission balancing measurement

To use the format to transfer all necessary balancing emission data of NPP the following fields are optional possible:

2.3.10.1 Detection limit

The detection limit (Nachweisgrenze) is reported as the 'maximum detection limit' (introduced with version IDF 3.3, see position 14. of format description in 2.2.1). It is an optional field formatted like 'measured value'. The unit is Bq/m^3.

2.3.10.2 Comment for balancing

In supplement to the standard comment principles described in 2.2 beginning with ´!´ a optional fixed field with up to 40 characters is necessary for emission balancing comments. Beginning from V3.20 it is mandatory with quotation marks: “ ”, because more optional fields are possible behind this field.
For *backward compatibility* to older versions 3 the reading of strings without quotation marks (rest of line) should be possible.

2.3.10.3 Decision limits

The decision limits (Erkennungsgrenze) are reported as 'minimum decision threshold' and 'maximum decision threshold' representing optional fields formatted like 'measured value' (see position 10. and 11. of format description in 2.2.1). The unit is Bq/m^3.
^

2.3.11. Geo Key

The Geo Key indicates in up to two bytes the kind of coordinate and/or area-code in the first and second geo string as:

```
1 - Geographical Coordinates            (first and second geo string)
2 - UTM Coordinates (MGRS)              (first geo string)
3 - Gauss/Krueger Coordinates           (first and second geo string)
4 - National Area Code (NAC – Gemeindeschluessel) (first geo string)
5 - NUTS - The European Commission Area Code     (first geo string)
6 - UTM Coordinates                     (first and second geo string)
24 - (2 and 4) UTM (MGRS) and NAC       (first and second geo string)
25 - (2 and 5) UTM (MGRS) and NUTS      (first and second geo string)
45 - (4 and 5) NAC and NUTS             (first and second geo string)
80 – Code of nucl. Installation  and  zone & sector of disaster plan
                    (first and second geo string, Exampl.: U01A  M11)
99 – the station is no longer valid     (no geo string)
```

If following information need only the 'first geo string', the 'second geo string' disappears or is positioned with '*' (s. 2.2).
^

2.3.11.1 Geographical Longitude and Latitude

The geographical Longitude is indicated in a 10 byte and Latitude in a 9 byte string, in decimal notation. E-001 is equal to W001.
Example: `E008.56433 N57.00131`

2.3.11.2 UTM Coordinates

The UTM (Universal Transverse Mercator projection WGS84) Coordinates are existing in two different forms:
a) form of the “Military Grid Reference System” (UTMREF/MGRS):
This form is historical often in use with up to 11 characters (100m precision, e.g. 32UPU914351). The differences between old ED50 and actual WGS84 systems in this 100m precision form are insignificant. 13 characters representing 10m precision.
MGRS form may include up to 15 character fields representing 1m precision:
Example: `32UMB1177755984` (N 51° 2' 54.99", E 7° 44' 28.97")
This form must be coded in the “first geo string”.
b) The “normal” UTM form has a decimal UTM latitude and longitude. This form needs coding in the first and second geo string as decimal value in up to 1m precision in a specified zone.
Example: `411777 5655984` - default zone 32, (N 51° 2' 54.99", E 7° 44' 28.97") same as
`32411777 5655984` - is 1m precision E and N value [m] (32N411777 5655984)

2.3.11.3 Gauss/Krueger Coordinates

This coordinates positioned in the first and second geo string with full-notated meridian.

2.3.11.4 National Area Code

The National Area Code (e.g. the German Gemeindeschluessel) is a 8 characters field.

2.3.11.5 NUTS - The European Commission Area Code

The NUTS Area Code of European Commission is a 10 characters field.
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2.3.12. Altitude

If the information indicating height above sea level is available it is expressed in meters, as a up to 9 byte array. The height of measurement station related to the foot-point of may be appended as numerical offset to the altitude of sea level.
examples:

```
120    -  120 meters above sea level
-30    -  30 meters below sea level
50+10  -  10 meters above the ground (60m above sea level)
*+15,5 -  15,5 meters above unknown altitude above sea level.
```

^

2.3.13. Location Name

The Location Name (up to 50 characters, beginning from V3.20 in quotation marks: “ ”) may include behind the name and one blank space comments about special measuring place or equipment etc.
Following key words are supported (with brackets):
(height of emission)
is obliged (along with free text description) to describe a specifically measurement location in the height of emission.
(inside stack)
will indicate measurement location insides the stack.

examples:

```
“KWO Mast 20m”                  equivalent altitude:      *+20
“KWO Kamin 110m (height of emission)”
```

For *backward compatibility* to older versions 3 the reading of strings without quotation marks (rest of line) should be possible.
^

2.3.14. Time period, delta t

This field inside AERO section is used as time distance in seconds especially for aero spectrometry results.

This field outside from AERO section in conjunction with specific “Measuring-, averaging- or balancing-period” of a DOM indicates the offset in seconds on the begin of sampling period to begin of measurement. In this case the “time of measurement” field indicates the “time of sampling” (begin, middle or end s. time key 2.3.4.).
Particularly for DOMs (s.5.) with empty “Measuring-, averaging- or balancing-period” this fields contains the specific period in seconds from time of measurement *begin* (attend time key 2.3.4.) to the end (flexible Measuring-, averaging- or balancing-period).

2.3.15. Distance

This optional field is the geographical distance in meters between 2 results measured by aero spectrometry.
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3. Current European Country Identification Code

Country	*ISO 3166*
Albania	AL
Austria	AT
Belarus	BY
Belgium	BE
Bosnia-Herzegovina	BA
Bulgaria	BG
Croatia	HR
Czech Republic	CZ
Denmark	DK
Estonia	EE
Finland	FI
France	FR
Germany	DE
Great Britain (UK)	GB
Greece	GR
Hungary	HU
Iceland	IS
Ireland	IE
Italy	IT
Latvia	LV
Lithuania	LT
Luxembourg	LU
Moldavia	MD
Netherlands	NL
Norway	NO
Poland	PL
Portugal	PT
Romania	RO
Russia	RU
Serbia	
Slovak Republic	SK
Slovenia	SI
Spain	ES
Sweden	SE
Switzerland	CH
Turkey	TR
Ukraine	UA

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4. List of Network Keywords

IDF NK	*Name of network or organization name*
Germany (IMIS):	
A	BfS IAR (SW2F)
D	BfS ZdB (SW2N)
F	DWD Aeroplane aero spectrometry system
G	BfG
H	BSH
I	BfS ISH, Helicopter aero spectrometry system
M	mobile measurement station
U	BfS ABI measurement network
R	BfS RODOS
S	Sonstige - other (international)
T	PTB
W	DWD
Z	BfS ODL measurement network
a	Schleswig-Holstein
b	Hamburg
c	Niedersachsen
d	Bremen
e	Nordrhein-Westfalen
f	Hessen
g	Rheinland-Pfalz
h	Baden-Wuerttemberg
i	Bayern
j	Saarland
k	Berlin
l	Brandenburg
m	Mecklenburg-Vorpommern
n	Sachsen
o	Sachsen-Anhalt
p	Thueringen
u	Umgebungsmessungen (KHG GmbH in BW)
Italy:	
J	EU JRC Ispra
S	other
France:	
O	OPRI (IRSN)
S	other (for general international use)
Switzerland:	
F	FWP
M	MADUK
N	NADAM
R	RADAIR
S	other (for general international use)
Z	NAZ

^

5. List of Description of Measurement (DOM)

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"Long lived" indicates default 120h delay of measures, more specific delay s. 2.3.14

IDF Code	*Medium*	*Object*	*Quantity being measured*	*Unit*	*Measuring-, averaging- or balancing-period*
074	deposition	ground	gamma surface activity	Bq/m²	2 h
075	deposition	ground	gamma surface activity	Bq/m²	1 d
076	deposition	ground	gamma surface activity	Bq/m²	1 week
077	deposition	ground	gamma surface activity	Bq/m²	1 month
081	deposition	ground	beta surface activity, long lived	Bq/m²	1 d
082	deposition	ground	beta surface activity, after 24h	Bq/m²	1 d
084	deposition	ground	beta surface activity	Bq/m²	2 h
085	deposition	ground	beta surface activity	Bq/m²	1 d
086	deposition	ground	beta surface activity	Bq/m²	1 week
087	deposition	ground	beta surface activity	Bq/m²	1 month
094	deposition	ground	alpha surface activity	Bq/m²	2 h
095	deposition	ground	alpha surface activity	Bq/m²	1 d
096	deposition	ground	alpha surface activity	Bq/m²	1 week
097	deposition	ground	alpha surface activity	Bq/m²	1 month
			(spec. 1 Gy = 1 Sv)		
100			gross dose rate	µGy/h	1 min
101			gross dose rate	µGy/h	10 min
102			gross dose rate	µGy/h	30 min
103			gross dose rate	µGy/h	1 h
104			gross dose rate	µGy/h	2 h
105			gross dose rate	µGy/h	1 d
107			gross dose rate	µGy/h	1 month
109			gross dose rate	µGy/h	1 year
110			high gross dose rate	Gy/h	
111			high gross dose rate	Gy/h	10 min
120			net dose rate	µGy/h	
121			net dose rate	µGy/h	10 min
123			net dose rate	µGy/h	1 h
124			net dose rate	µGy/h	2 h
125			net dose rate	µGy/h	1 d
130			cosmic dose rate	µGy/h	
131			cosmic dose rate	µGy/h	10 min
134			cosmic dose rate	µGy/h	2 h
135			cosmic dose rate	µGy/h	1 d
140			terrestrial dose rate	µGy/h	
141			terrestrial dose rate	µGy/h	10 min
144			terrestrial dose rate	µGy/h	2 h
145			terrestrial dose rate	µGy/h	1 d
150		ground	nuclide-spec. dose rate	µGy/h	

152		ground	nuclide-spec. dose rate	µGy/h	30 min
153		ground	nuclide-spec. dose rate	µGy/h	1 h
154		ground	nuclide-spec. dose rate	µGy/h	2 h
^					
155			dose rate	µSv/h	
156			dose rate low energy	µSv/h	
157			dose rate intermediate energy	µSv/h	
160	in situ	ground	gamma surface activity wet	kBq/m²	
161	in situ	ground	gamma surface activity wet	kBq/m²	10 min
162	in situ	ground	gamma surface activity wet	kBq/m²	30 min
163	in situ	ground	gamma surface activity wet	kBq/m²	1 h
164	in situ	ground	gamma surface activity wet	kBq/m²	2 h
167	in situ	ground	gamma surface activity wet	kBq/m²	1 month
170	in situ	ground	gamma surface activity	kBq/m²	
171	in situ	ground	gamma surface activity	kBq/m²	10 min
172	in situ	ground	gamma surface activity	kBq/m²	30 min
173	in situ	ground	gamma surface activity	kBq/m²	1 h
174	in situ	ground	gamma surface activity	kBq/m²	2 h
177	in situ	ground	gamma surface activity	kBq/m²	1 month
180	in situ	ground	gamma surface act. Net	kBq/m²	
181	in situ	ground	gamma surface act. Net	kBq/m²	10 min
182	in situ	ground	gamma surface act. Net	kBq/m²	30 min
183	in situ	ground	gamma surface act. Net	kBq/m²	1 h
184	in situ	ground	gamma surface act. Net	kBq/m²	2 h
187	in situ	ground	gamma surface act. Net	kBq/m²	1 month
191		ground	gamma surface activity	Bq/m²	
192	calculated	ground	gamma surface activity	kBq/m²	
195		ground	gamma surface activity concent.	Bq/kg	
199		ground		mm	
^					
200	air	aerosol particles	gamma activity concent.	Bq/m³	
201	air	aerosol particles	gamma activity concent.	Bq/m³	10 min
202	air	aerosol particles	gamma activity concent.	Bq/m³	30 min
203	air	aerosol particles	gamma activity concent.	Bq/m³	1 h
204	air	aerosol particles	gamma activity concent.	Bq/m³	2 h
205	air	aerosol particles	gamma activity concent.	Bq/m³	1 d
206	air	aerosol particles	gamma activity concent.	Bq/m³	1 week
207	air	aerosol particles	gamma activity concent.	Bq/m³	1 month
210	air	aerosol particles	gamma activity concent.	Bq/m³	2 weeks
211	air	aerosol particles	total gamma act. concent.	Bq/m³	10 min
212	air	aerosol particles	total gamma act. concent.	Bq/m³	30 min
213	air	aerosol particles	total gamma act. concent.	Bq/m³	1 h
214	air	aerosol particles	total gamma act. Concent.	Bq/m³	2 h
220	air	aerosol particles	artificial beta activity concent.	Bq/m³	
221	air	aerosol particles	artificial beta activity concent.	Bq/m³	10 min
222	air	aerosol particles	artificial beta activity concent.	Bq/m³	30 min
223	air	aerosol particles	artificial beta activity concent.	Bq/m³	1 h
224	air	aerosol particles	artificial beta activity concent.	Bq/m³	2 h

225	air	aerosol particles	artificial beta activity concent.	Bq/m³	1 d
230	air	aerosol particles	beta activity concent.	Bq/m³	
231	air	aerosol particles	beta activity concent.	Bq/m³	10 min
232	air	aerosol particles	beta activity concent.	Bq/m³	30 min
233	air	aerosol particles	beta activity concent.	Bq/m³	1 h
234	air	aerosol particles	beta activity concent.	Bq/m³	2 h
235	air	aerosol particles	beta activity concent.	Bq/m³	1 d
237	air	aerosol particles	beta activity concent.	Bq/m³	1 month
^					
241	air	aerosol particles	total beta act.concent.	Bq/m³	10 min
242	air	aerosol particles	total beta act.concent.	Bq/m³	30 min
243	air	aerosol particles	total beta act.concent.	Bq/m³	1 h
244	air	aerosol particles	total beta act.concent.	Bq/m³	2 h
245	air	aerosol particles	total beta act.concent.	Bq/m³	1 d
252	air	aerosol particles	artificial alpha activity concent.	Bq/m³	30 min
253	air	aerosol particles	artificial alpha activity concent.	Bq/m³	1 h
254	air	aerosol particles	artificial alpha activity concent.	Bq/m³	2 h
255	air	aerosol particles	artificial alpha activity concent.	Bq/m³	1 d
262	air	aerosol particles	alpha activity concent.	Bq/m³	30 min
264	air	aerosol particles	alpha activity concent.	Bq/m³	2 h
265	air	aerosol particles	alpha activity concent.	Bq/m³	1 d
267	air	aerosol particles	alpha activity concent.	Bq/m³	1 month
272	air	aerosol particles	total alpha act.concent.	Bq/m³	30 min
274	air	aerosol particles	total alpha act.concent.	Bq/m³	2 h
275	air	aerosol particles	total alpha act.concent.	Bq/m³	1 d
281	air	aerosol particles	beta activity concent., long lived	Bq/m³	10 min
282	air	aerosol particles	beta activity concent., long lived	Bq/m³	30 min
283	air	aerosol particles	beta activity concent., long lived	Bq/m³	1 h
284	air	aerosol particles	beta activity concent., long lived	Bq/m³	2 h
285	air	aerosol particles	beta activity concent., long lived	Bq/m³	1 d
287	air	aerosol particles	beta activity concent., long lived	Bq/m³	1 month
289	air	aerosol particles	beta activity concent., 10h later	Bq/m³	2h
291	air	aerosol particles	total emission	Bq/h	10 min
292	air	aerosol particles	total emission	Bq/h	30 min
^					
300	air	iodine	activity concentration	Bq/m³	
301	air	iodine	activity concentration	Bq/m³	10 min
302	air	iodine	activity concentration	Bq/m³	30 min
304	air	iodine	activity concentration	Bq/m³	2 h
305	air	iodine	activity concentration	Bq/m³	1 d
306	air	iodine	activity concentration	Bq/m³	1 week
307	air	iodine	activity concentration	Bq/m³	2 weeks
309	air	iodine	activity concentration	Bq/m³	4 h
311	air	iodine	total emission	Bq/h	10 min
312	air	iodine	total emission	Bq/h	30 min
320	air	noble gases	activity concentration	Bq/m³	

321	air	noble gases	activity concentration	Bq/m³	10 min
322	air	noble gases	activity concentration	Bq/m³	30 min
324	air	noble gases	activity concentration	Bq/m³	2 h
325	air	noble gases	activity concentration	Bq/m³	1 d
327	air	noble gases	activity concentration	Bq/m³	1 month
331	air	noble gases	high activity concent.	Bq/m³	10 min
332	air	noble gases	high activity concent.	Bq/m³	30 min
341	air	noble gases	total emission	Bq/h	10 min
342	air	noble gases	total emission	Bq/h	30 min
353	air	aerosol particles	gamma activity	Bq	1 h
355	air	aerosol particles	gamma activity	Bq	1 d
356	air	aerosol particles	gamma activity	Bq	1 week
357	air	aerosol particles	gamma activity	Bq	1 month
358	air	aerosol particles	gamma activity	Bq	3 months
359	air	aerosol particles	gamma activity	Bq	1 year
^					
363	air	aerosol particles	beta activity	Bq	1 h
365	air	aerosol particles	beta activity	Bq	1 d
366	air	aerosol particles	beta activity	Bq	1 week
367	air	aerosol particles	beta activity	Bq	1 month
368	air	aerosol particles	beta activity	Bq	3 months
369	air	aerosol particles	beta activity	Bq	1 year
^					
373	air	aerosol particles	total beta activity	Bq	1 h
375	air	aerosol particles	total beta activity	Bq	1 d
376	air	aerosol particles	total beta activity	Bq	1 week
377	air	aerosol particles	total beta activity	Bq	1 month
378	air	aerosol particles	total beta activity	Bq	3 months
379	air	aerosol particles	total beta activity	Bq	1 year
383	air	aerosol particles	alpha activity	Bq	1 h
385	air	aerosol particles	alpha activity	Bq	1 d
386	air	aerosol particles	alpha activity	Bq	1 week
387	air	aerosol particles	alpha activity	Bq	1 month
388	air	aerosol particles	alpha activity	Bq	3 months
389	air	aerosol particles	alpha activity	Bq	1 year
393	air	aerosol particles	total alpha activity	Bq	1 h
395	air	aerosol particles	total alpha activity	Bq	1 d
396	air	aerosol particles	total alpha activity	Bq	1 week
397	air	aerosol particles	total alpha activity	Bq	1 month
398	air	aerosol particles	total alpha activity	Bq	3 months
399	air	aerosol particles	total alpha activity	Bq	1 year
403	air	iodine	activity	Bq	1 h
405	air	iodine	activity	Bq	1 d
406	air	iodine	activity	Bq	1 week
407	air	iodine	activity	Bq	1 month
408	air	iodine	activity	Bq	3 months
409	air	iodine	activity	Bq	1 year
^					

411	air	aerosol particles	alpha activity conc., long lived	Bq/m³	10 min
412	air	aerosol particles	alpha activity conc., long lived	Bq/m³	30 min
413	air	aerosol particles	alpha activity conc., long lived	Bq/m³	1 h
414	air	aerosol particles	alpha activity conc., long lived	Bq/m³	2 h
415	air	aerosol particles	alpha activity conc., long lived	Bq/m³	1 d
417	air	aerosol particles	alpha activity conc., long lived	Bq/m³	1 month
423	air	noble gases	gamma activity	Bq	1 h
425	air	noble gases	gamma activity	Bq	1 d
426	air	noble gases	gamma activity	Bq	1 week
427	air	noble gases	gamma activity	Bq	1 month
428	air	noble gases	gamma activity	Bq	3 months
429	air	noble gases	gamma activity	Bq	1 year
433	air	noble gases	total gamma activity	Bq	1 h
435	air	noble gases	total gamma activity	Bq	1 d
436	air	noble gases	total gamma activity	Bq	1 week
437	air	noble gases	total gamma activity	Bq	1 month
438	air	noble gases	total gamma activity	Bq	3 months
439	air	noble gases	total gamma activity	Bq	1 year
^					
443	air	noble gases	beta activity	Bq	1 h
445	air	noble gases	beta activity	Bq	1 d
446	air	noble gases	beta activity	Bq	1 week
447	air	noble gases	beta activity	Bq	1 month
448	air	noble gases	beta activity	Bq	3 months
449	air	noble gases	beta activity	Bq	1 year
^					
453	air	noble gases	total beta activity	Bq	1 h
455	air	noble gases	total beta activity	Bq	1 d
456	air	noble gases	total beta activity	Bq	1 week
457	air	noble gases	total beta activity	Bq	1 month
458	air	noble gases	total beta activity	Bq	3 months
459	air	noble gases	total beta activity	Bq	1 year
563	air	gases	beta activity	Bq	1 h
565	air	gases	beta activity	Bq	1 d
566	air	gases	beta activity	Bq	1 week
567	air	gases	beta activity	Bq	1 month
568	air	gases	beta activity	Bq	3 months
569	air	gases	beta activity	Bq	1 year
573	air	aerosol particles	beta activity, long lived	Bq	1 h
575	air	aerosol particles	beta activity, long lived	Bq	1 d
576	air	aerosol particles	beta activity, long lived	Bq	1 week
577	air	aerosol particles	beta activity, long lived	Bq	1 month
578	air	aerosol particles	beta activity, long lived	Bq	3 months
579	air	aerosol particles	beta activity, long lived	Bq	1 year
583	air		volume	m³	1 h
585	air		volume	m³	1 d
586	air		volume	m³	1 week
587	air		volume	m³	1 month
588	air		volume	m³	3 months

589	air		volume	m³	1 year
591	air		volume stream	m³/h	10 min
592	air		volume stream	m³/h	30 min
^					
593	air	stack	temperature	°C	10 min
594	air	stack	temperature	°C	30 min
595	air	stack	temperature	°C	1 h
596	air		temperature	°C	10 min
597	air		temperature	°C	30 min
598	air		temperature	°C	1 h
599	air		overall loss factor		
606	water		gamma activity	Bq	1 week
607	water		gamma activity	Bq	1 month
608	water		gamma activity	Bq	3 months
609	water		gamma activity	Bq	1 year
623	water		beta activity	Bq	1 h
625	water		beta activity	Bq	1 d
626	water		beta activity	Bq	1 week
627	water		beta activity	Bq	1 month
628	water		beta activity	Bq	3 months
629	water		beta activity	Bq	1 year
646	water		alpha activity	Bq	1 week
647	water		alpha activity	Bq	1 month
648	water		alpha activity	Bq	3 months
649	water		alpha activity	Bq	1 year
656	water		total alpha activity	Bq	1 week
657	water		total alpha activity	Bq	1 month
658	water		total alpha activity	Bq	3 months
659	water		total alpha activity	Bq	1 year
^					
661	water		gamma act.conc.	Bq/m³	10 min
662	water		gamma act.conc.	Bq/m³	30 min
663	water		gamma act.conc.	Bq/m³	1 h
664	water		gamma act.conc.	Bq/m³	2 h
665	water		gamma act.conc.	Bq/m³	1 d
^					
671	water		specific act.conc.	Bq/m³	10 min
672	water		specific act.conc.	Bq/m³	30 min
673	water		specific act.conc.	Bq/m³	1 h
674	water		specific act.conc.	Bq/m³	2 h
691	air		counting rate	Imp/s	10 min
693	air		counting rate	Imp/s	1 h
695	air		counting rate	Imp/s	1 d
696	air		counting rate	Imp/s	1 week
697	air		counting rate	Imp/s	1 month
698	air		counting rate	Imp/s	3 months
706	water		volume	m³	1 week

707	water		volume	m³	1 month
708	water		volume	m³	3 months
709	water		volume	m³	1 year
711	water		volume stream	m³/h	10 min
712	water		volume stream	m³/h	30 min
716	water		temperature	°C	10 min
717	water		temperature	°C	30 min
786	air	meteo	temperature	°C	10 min
787	air	meteo	temperature	°C	30 min
788	air	meteo	temperature	°C	1 h
791		meteo	air pressure	mm	10 min
793		meteo	air pressure	mm	1 h
796		meteo	rel. humidity	%	10 min
797		meteo	rel. humidity	%	1 h
^					
800		meteo	precipitation	mm	
801		meteo	precipitation	mm	10 min
802		meteo	precipitation	mm	30 min
803		meteo	precipitation	mm	1 h
804		meteo	precipitation	mm	2 h
805		meteo	precipitation	mm	1 d
806		meteo	precipitation	mm	1 wo
807		meteo	precipitation	mm	1 m
815		meteo	precipitation snow	mm	1 d
818		meteo	precipitation probability		15 min
819		meteo	precipitation probability		2 h
824		meteo	precipitation intensity	mm/min	
825		meteo	precipitation intensity	mm/h	
827		meteo	precipitation relativly		10 min
831		meteo	wind velocity	m/s	10 min
832		meteo	wind velocity	m/s	30 min
833		meteo	wind velocity	m/s	1 h
834		meteo	wind velocity	m/s	2 h
836		meteo	wind veloc. fluctuation (sigma w)	m/s	10 min
837		meteo	wind veloc. fluctuation (sigma w)	m/s	30 min
838		meteo	wind veloc. fluctuation (sigma w)	m/s	1 h
^					
841		meteo	wind direction	Grad	10 min
842		meteo	wind direction	Grad	30 min
843		meteo	wind direction	Grad	1 h
844		meteo	wind direction	Grad	2 h
851		meteo	wind dir. fluctuation (sigma θ)	Grad	10 min
852		meteo	wind dir. fluctuation (sigma θ)	Grad	30 min
853		meteo	wind dir. fluctuation (sigma θ)	Grad	1 h
856		meteo	wind dir. fluctuation (sigma Φ)	Grad	10 min
857		meteo	wind dir. fluctuation (sigma Φ)	Grad	30 min
858		meteo	wind dir. fluctuation (sigma Φ)	Grad	1 h
^					

861		meteo	radiation balance	W/m²	10 min
862		meteo	radiation balance	W/m²	30 min
863		meteo	radiation balance	W/m²	1 h
876		meteo	stability class (1-6) (sigma w)	-	10 min
877		meteo	stability class (1-6) (sigma w)	-	30 min
878		meteo	stability class (1-6) (sigma w)	-	1 h
881		meteo	stability class (1-6) (radiation balance)	-	10 min
882		meteo	stability class (1-6) (radiation balance)	-	30 min
883		meteo	stability class (1-6) (radiation balance)	-	1 h
886		meteo	stability class (1-6) (sigma θ)	-	10 min
887		meteo	stability class (1-6) (sigma θ)	-	30 min
888		meteo	stability class (1-6) (sigma θ)	-	1 h
891		meteo	stability class (1-6) (sigma Φ)	-	10 min
892		meteo	stability class (1-6) (sigma Φ)	-	30 min
893		meteo	stability class (1-6) (sigma Φ)	-	1 h
896		meteo	stability class (1-6) (temp. gradient)	-	10 min
897		meteo	stability class (1-6) (temp. gradient)	-	30 min
898		meteo	stability class (1-6) (temp. gradient)	-	1 h
^					
951			electrical power	MW	10 min
953			electrical power	MW	1 h
955			electrical power	MW	1 d
956			electrical power	MW	1 week
957			electrical power	MW	1 month
958			electrical power	MW	3 months
959			electrical power	MW	1 year
961			therm. power	MW	10 min
963			therm. power	MW	1 h
965			therm. power	MW	1 d
966			therm. power	MW	1 week
967			therm. power	MW	1 month
968			therm. power	MW	3 months
969			therm. power	MW	1 year
999			Individual user defined		

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6. List of nuclides

IDF string	*Name*
H3	Hydrogen
H3O	Hydrogen organic bounded
H3A	Hydrogen inorganic
Be7	Beryllium
Be10	
N13	Nitrogen
N16	
C14	Carbon
C14CO2	Carbon CO_2
C14OG	Carbon other gases
F18	
Na22	Sodium
P32	Phosphate
P33	
S35	
Cl36	
K40	Potassium
Ar41	Argon
Ca41	
Ca45	
Ti44	
Sc46	Scandium
V48	
V49	
Cr51	Chrome
Mn52	Manganese
Mn54	
Fe55	Iron
Fe59	
^	
Co56	Cobalt
Co57	
Co58	
Co60	
Ni59	Nickel
Ni63	
Zn65	Zinc
Ga67	
Ga68	
Ge68	
Ge69	
As73	
Se75	Selenium
Se79	
Rb81	
Rb83	
Rb84	
Rb87	
Kr85	Krypton
Kr85m	
Kr87	
Kr88	

Kr89	
Sr85	Strontium
Sr89	
^	
Sr8990	Strontium 89/90
Sr90	
Sr91	
Sr92	
Y87	Yttrium
Y88	
Y90	
Y91	
Y92	
Y93	
Zr89	Zirconium
Zr93	
Zr95	
Zr97	
Nb93m	Niobium
Nb94	
Nb95m	
Nb95	
Nb97	
Mo93	Molybdenum
Mo99	
Tc95m	Technetium
Tc96	
Tc99	
Tc99m	
Rh99	
Rh101	
Rh102m	
^	
Rh106	
Pd100	
Pd103	
Pd107	
Ru103	Ruthenium
Ru106	
Ag108m	Silver
Ag110m	
Cd109	
Cd113m	
Cd115m	
In114m	
Sn113	Tin
Sn119m	
Sn121m	
Sn122	
Sn123	
Sn126	
Sb124	Antimony
Sb125	
Sb126	
Sb127	

Sb129	
Te123m	Tellurium
Te125m	
Te127m	
Te129m	
Te129	
Te131m	
^	
Te132	
I123	Iodine
I124	
I125	
I126	
I129	
I131	
I131G	Iodine elementary gaseous
I131O	Iodine organic bounded
I131GO	Iodine gaseous elementary and organic bounded
I131A	Iodine aerosol
I132	Iodine
I132G	Iodine elementary gaseous
I132O	Iodine organic bounded
I132GO	Iodine gaseous elementary and organic bounded
I132A	Iodine aerosol
I133	Iodine
I133G	Iodine elementary gaseous
I133O	Iodine organic bounded
I133GO	Iodine gaseous elementary and organic bounded
I133A	Iodine aerosol
I134	Iodine
I135	Iodine
I135G	Iodine elementary gaseous
I135O	Iodine organic bounded
I135GO	Iodine gaseous elementary and organic bounded
I135A	Iodine aerosol
^	
Xe131m	Xenon
Xe133m	
Xe133	
Xe135m	
Xe135	
Xe137	
Xe138	
Xenon	sum of all Xenon isotopes
Cs131	Caesium
Cs135	
Cs134	
Cs136	
Cs137	
Ba133	Barium
Ba140	
Ce139	Cerium
Ce141	
Ce143	
Ce144	

La140	Lanthanum
La141	
Pr144	
Sm145	
Sm151	
Nd147	Neodymium
Pm146	Promethium
Pm147	
Pm151	
Eu152	Europium
Eu154	
^	
Eu155	
Gd153	
Tb160	
Ho166m	
Tm170	
Hf175	Hafnium
Hf181	
Ta179	Tantalum
Ta182	
Re184	
Ir192	
Hg203	Mercury
Tl204	Thallium
Tl208	
Bi205	Bismuth
Bi207	
Bi212	
Bi214	
Po208	
Po210	
Po218	
^	
Pb210	Lead
Pb212	
Pb214	
Rn220	Radon
Rn222	
Ra224	Radium
Ra228	
Ra226	
Ac225	Actinium
Ac227	
Ac228	
Th227	Thorium
Th228	
Th229	
Th230	
Th232	
Th231	
Th234	
Pa231	Protactinium
Pa233	
Pa234m	

U232	Uranium
U233	
U234	
U235	
U236	
U237	
U238	
Pu236	Plutonium
Pu238	
Pu239	
Pu240	
Pu241	
Pu242	
Pu244	
Np237	Neptunium

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Np238	
Np239	
Am241	Americium
Am242	
Am242m	
Am243	
Cm242	Curium
Cm243	
Cm244	
Cm245	
Cm246	
Cm247	
Cm248	
Cm2434	Curium 243/244
Pu238A	Plutonium 238/Americium 241
Pu2394	Plutonium 239/240
Bk249	
Cf249	
Cf250	
Cf252	
SumAl	Sum alpha
SumBe	Sum beta
SumGa	Sum gamma
SumBG	Sum beta & gamma
SumAKL	Sum alpha short-lived
SumALL	Sum alpha long-lived
SumBKL	Sum beta short-lived
SumBLL	Sum beta long-lived
SumAer	Sum aerosol particulates
SumIod	Sum Iodine
SumEG	Sum noble gas
AKG	Activation gas
ECs137	Cs137 Equivalent

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7. Data file examples

a) ITJ16201.DAT :

```
DEA ITJ 0112160147 320
DATA
DE Z0121 0112012359 3 105 +1.10e-01 000 1.00e-02
DE Z0122 0112012359 3 105 +1.10e-01 * 1.00e-02
DE Z0123 0112012359 3 105 +1.10e-01
DE Z0124 0112012359 3 105 +1.10e-01 1
DE M0001 0111300000 1 170 +9.10e+00 211 1.00e-02 Cs137 * * * 1800
SITE
M0001 1 E012.99724 N47.56045 * “InSitu Fahrzeug MNK Bonn“ DE
Z0121 25 32UTC65789899 DE63478923 * “Musterdorf“ DE
Z0122 4 168287987 * * “Musterstadt“ DE
Z0120 99
ZZZZZ
<EOF>
```

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b) CHM08301.DAT

```
DEh CHM 9706010720 320
TEST DATA
DE h3040 9706010700 3 102 +5.50e+00
DE h3040 9706010700 3 202 +6.50e+00
DE h3040 9706010700 3 322 +7.50e+00 1 ! Kommentar: XYZ
DE h3041 9706010700 3 711 +5.50e+03 1
DE h3041 9706010700 3 661 +5.00e+00
DE h3042 9706010700 3 711 +6.50e+02 1
DE h3042 9706010700 3 661 +5.00e+02 1
DE h2040 9706010900 3+2 831 +5.50e+00 1
DE h2099 9706010900 3+2 831 +8.50e+00 1
SITE
h3040 1 E009.04000 N49.10000 144+110 “KWO Kamin 110m, height of emission“
h3041 1 E009.04000 N49.10000 144 KWO “Abwasserkanal“
h3042 1 E009.04000 N49.10000 144 KWO “Uebergabekanal“
h2040 1 E008.11000 N47.36000 310+30 “Waldshut Mast 30m“
h2099 1 E008.11000 N47.36000 310+99 “Waldshut Mast 99m“
ZZZZZ
<EOF>
```

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c) DER05041.DAT

```
DEc DER 0004041413 302
DATA
DE cSm01 0004041410 3 831   3.04E+00 1  *
DE cSm10 0004041410 3 831   4.30E+00 1  *
DE cSm12 0004041410 3 831   4.50E+00 1  *
DE cSm15 0004041410 3 831   4.90E+00 1  *
DE cSm17 0004041410 3 831   4.20E+00 1  *
DE cSm05 0004041410 3 831   3.70E+00 1  *
DE cSm07 0004041410 3 831   3.90E+00 1  *
DE cSm01 0004041410 3 841   2.26E+02 1  *
DE cSm10 0004041410 3 841   2.23E+02 1  *
DE cSm12 0004041410 3 841   2.15E+02 1  *
DE cSm15 0004041410 3 841   2.15E+02 1  *
DE cSm17 0004041410 3 841   2.14E+02 1  *
DE cSm05 0004041410 3 841   2.28E+02 1  *
DE cSm07 0004041410 3 841   2.25E+02 1  *
DE cSm10 0004041410 3 836   4.80E-01 1  *
DE cSm12 0004041410 3 836   6.20E-01 1  *
DE cSm15 0004041410 3 836   6.80E-01 1  *
DE cSm17 0004041410 3 836   8.50E-01 1  *
DE cSm05 0004041410 3 836   4.60E-01 1  *
DE cSm07 0004041410 3 836   5.70E-01 1  *
DE cSm00 0004041410 3 824   0.00E+00 1  *
```

```
DE cSe50 0004041410 3 341   2.98E+08 1  *
DE cSe50 0004041410 3 291   1.66E+05 1  *
DE cSe50 0004041410 3 311   1.36E+04 1  *
DE cSe50 0004041410 3 591   1.06E+05 1  *
DE cSm00 0004041410 3 596   1.38E+01 1  *
DE cSe50 0004041410 3 596   2.84E+01 1  *
DE cSm50 0004041410 3 881   4.00E+00 1  *
DE cSm50 0004041410 3 876   2.00E+00 1  *
DE cSm00 0004041410 3 861   6.25E+01 1  *
SITE
cSm01 2 32UNE35104140 * 5+10 KKS Meteorologie, Mast 10m
cSm10 2 32UNE35104140 * 5+100 KKS, Meteorologie SODAR 100m
cSm12 2 32UNE35104140 * 5+125 KKS, Meteorologie SODAR 125m
cSm15 2 32UNE35104140 * 5+150 KKS, Meteorologie SODAR 150m
cSm17 2 32UNE35104140 * 5+175 KKS, Meteorologie SODAR 175m
cSm05 2 32UNE35104140 * 5+50 KKS, Meteorologie SODAR 50m
cSm07 2 32UNE35104140 * 5+75 KKS, Meteorologie SODAR 75m, Kaminhoehe
cSm00 2 32UNE35104140 * 5+2 KKS Meteorologie, 2m ueber Grund
cSe50 2 32UNE35104140 * 5+80 KKS Kamin, Emissionshoehe 80m
cSm50 2 32UNE35104140 * 5+75 KKS, Meteorologie, Ausbreitungsklassen
ZZZZZ
<EOF>
```

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d) DER21121.DAT

```
DEa DER 0003211108 302
TEST DATA
DE aB110 0003211100 3 596 2,93e+01 * * 1
DE aB111 0003211100 3 111 0,00e+00 * * 1
DE aB111 0003211100 3 291 2,46e+05 * * 1
DE aB111 0003211100 3 321 1,00e+04 * * 1
DE aB111 0003211100 3 341 1,14e+09 * * 1
DE aB111 0003211100 3 301 1,01e-01 * I131 1
DE aB111 0003211100 3 311 1,01e+04 * I131 1
DE aB112 0003211100 3 111 0,00e+00 * * 1
DE aB112 0003211100 3 291 3,28e+04 * * 1
DE aB112 0003211100 3 321 1,00e+04 * * 1
DE aB112 0003211100 3 341 1,02e+09 * * 1
DE aB112 0003211100 3 301 1,00e-01 * I131 1
DE aB112 0003211100 3 311 1,00e+04 * I131 1
DE aB113 0003211100 3 591 4,45e+05 * * 1
DE aB114 0003211100 3 591 4,61e+05 * * 1
DE aB115 0003211100 3 591 4,45e+05 * * 1
DE aB115 0003211100 3 291 2,46e+05 * * 1
DE aB115 0003211100 3 341 1,14e+09 * * 1
DE aB115 0003211100 3 311 1,01e+04 * I131 1
DE aB120 0003211100 3 591 0,00e+00 * * 1
DE aB120 0003211100 3 111 1,00e-03 * * 1
DE aB120 0003211100 3 341 0,00e+00 * * 1
DE aB130 0003211100 3 591 0,00e+00 * * 1
DE aB130 0003211100 3 341 0,00e+00 * * 1
DE aB131 0003211100 3 321 1,56e+00 * * 1
DE aB131 0003211100 3 341 0,00e+00 * * 1
DE aB132 0003211100 3 321 2,19e+00 * * 1
DE aB132 0003211100 3 341 0,00e+00 * * 1
DE aB210 0003211100 3 661 4,79e+04 * * 1
DE aB220 0003211100 3 711 3,11e+04 * * 1
DE aB220 0003211100 3 661 1,42e+04 * * 1
DE aB300 0003211100 3 825 0,00e+00 * * 1
DE aB300 0003211100 3 861 9,08e+01 * * 1
DE aB300 0003211100 3 896 4,00e+00 * * 1
DE aB300 0003211100 3 881 3,00e+00 * * 1
DE aB310 0003211100 3 831 3,29e+00 * * 1
DE aB310 0003211100 3 841 2,63e+02 * * 1
DE aB311 0003211100 3 831 3,29e+00 * * 1
DE aB311 0003211100 3 841 2,63e+02 * * 1
DE aB320 0003211100 3 831 3,22e+00 * * 1
DE aB320 0003211100 3 841 2,60e+02 * * 1
DE aB330 0003211100 3 841 2,60e+02 * * 1
DE aB330 0003211100 3 831 2,59e+00 * * 1
ZZZZZ
<EOF>
```

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e) DER21121.DAT

```
DEa DER 0003211108 302
SITE
aB110 2 32UNE22846721 * * Kamin
aB111 2 32UNE22846721 * * Kamin Aktivitaet, Redundanz 1
aB112 2 32UNE22846721 * * Kamin Aktivitaet, Redundanz 2
aB113 2 32UNE22846721 * * Kamin Durchsatz, Redundanz 1
aB114 2 32UNE22846721 * * Kamin Durchsatz, Redundanz 2
aB115 2 32UNE22846721 * * Kamin, Ersatzwertstrategie
aB120 2 32UNE22846721 * * Ventingkamin
aB130 2 32UNE22846721 * * Maschinenhausdach
aB131 2 32UNE22846721 * * Maschinenhausdach, Redundanz 1
aB132 2 32UNE22846721 * * Maschinenhausdach, Redundanz 2
aB210 2 32UNE22846721 * * Abwasserleitung
aB220 2 32UNE22846721 * * Kuehlwasserkanal
aB300 2 32UNE22846721 * * Meteorologie
aB310 2 32UNE22846721 * * Wind, 148m bzw. Kaminhoehe
aB311 2 32UNE22846721 * * Wind, 148m bzw. Kaminhoehe, Ersatzwertstrategie
aB320 2 32UNE22846721 * * Wind, 96m bzw. 20m ueber Geesthang
aB330 2 32UNE22846721 * * Wind, MH-Dach
ZZZZZ
<EOF>
```

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f) DEI03081.AER

```
DEI___0104030809 310
TEXT
Dateibezeichnung:  032SWA-D NAI 01
Meßmethode:                Aerogammaspektrometrie
Einsatzgebiet:             Schwarzwald Mission D
Meßsystem:                 MARS-V3, sn.1      NaI (12l)
Meßparameter:              Höhe über Grund:   100m
                           Geschwindigkeit:   100km/h
                           Bahnabstand:                300m/Höhenlinien
                           Zykluszeit:                 2s / 30s   NaI/HPG
Meßteam:                   Mister X
Meßbeginn:                 23.06.99  06:34    UTC
Meßende:                   23.06.99  07:20    UTC

Koordinaten:               Gauß-Krüger / ED50          GPS       (Anm.: D-GPS wird derzeit beschafft)

Verteilungsmodell:  natürlich: homogen
                           künstlich: exponenetiell RMFD:7g/cm2  (Relaxationslänge ca. 5cm; Dichte:1,5g/cm3)
Bezugszeitpunkt:    23.06.99

AERO
DE I00C 1 E008.07392 N47.79273 9906230630 * 9 Uebung Schwarzwald
191 Cs137 195 K40 195 Bi214 195 Tl208 155
0.82 E008.07392 N47.79273 +126 * 2100 200 327 30 47 10 13 5 78
1.81 E008.07361 N47.79272 +121 * 2200 200 221 30 76 10 11 5 73
2.86 E008.07330 N47.79272 +119 * 2100 200 173 30 87 10 9 5 70
3.85 E008.07301 N47.79272 +121 * 2300 200 338 30 61 10 9 5 72
4.83 E008.07273 N47.79273 +122 * 2100 200 392 30 44 10 7 5 71
5.82 E008.07246 N47.79274 +123 * 1900 200 300 30 74 10 3 5 73
6.87 E008.07219 N47.79274 +123 * 2100 200 119 30 98 10 17 5 77
7.86 E008.07191 N47.79274 +123 * 2500 200 257 30 50 10 13 5 80
8.84 E008.07164 N47.79272 +121 * 2100 200 327 30 57 10 4 5 77
....
3201.83 E008.07148 N47.79267 +121 1800 200 201 30 82 10 13 5 86
ZZZZZ
<EOF>
```

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