

### 11.A.2.7. Freeway Search

#### 11.A.2.7.1. Freeway Search Frame

##### 11.A.2.7.1.1. Search Frame Management Frame

name [Management Frame of Freeway Search Frame]

No.	offset	Data length	Data type	Item name	Remarks	Classification
1	0	16		Management Frame Header of Freeway Search Frame		a
2	16	X		Detailed Search Information Record - #1		a

##### 11.A.2.7.1.1.1. Search Frame Management Frame Header

name [Management Frame Header of Freeway Search Frame]

No.	offset	Data length	Data type	Item name	Remarks	Classification
1	0	4	C	Data Declaration	'DFSR'	a
2	4	4	N	Category and Matching Data Count- G (Number of Detailed Search Information Records)	=1	a
3	8	4	SWS	Freeway Detailed Search Information Record Size	1)	a
4	12	4	D	Offset to the Top of Freeway Detailed Search Information Record	2)	a

- 1) Specify the size for one detailed search information record.
- 2) Specify the displacement from the top of the search frame management frame to the top of the detailed search information record.

##### 11.A.2.7.1.2. Detailed Search Information Record

name [Detailed Search Information Record]

No.	offset	Data length	Data type	Item name	Remarks	Classification
1	0	4	C	Data Declaration	'SRFW'	a
2	4	4	SWS	Expansion Field Size	1)	a
3	8	4	D	Offset to Expansion Field	1)	a
4	12	4	SWS	Category Definition Frame Size	2)	a
5	16	4	D	Address to Category Definition Frame	3)	a
6	20	4	SWS	Category Data Frame Size	2)	a
7	24	4	D	Address to Category Data Frame	3)	a
8	28	4	C	Default Keyboard Designation	'KBA2'	a
9	32	4	SWS	Category Parent Record Size	4)	a
10	36	4	SWS	Category Option Record Size	5)	a
11	40	4	SWS	First-level Category Table Size	6)	a
12	44	4	N	Number of the Option Items of the First-level Category	6)	a
13	48	4	D	Offset to First-level Category	6)	a
14	52	4	C	Keyboard Designation for First-level Category	'KBA2'	a

No.	offset	Data length	Data type	Item name	Remarks	Classification
15	56	4	SWS	Matching Data Definition Frame Size	2)	a
16	60	4	D	Address to Matching Data Definition Frame	3)	a
17	64	4	SWS	Matching Data Frame Size	2)	a
18	68	4	D	Address to Matching Data Frame	3)	a
19	72	4	SWS	Size of the Record of Matching Data Frame	7)	a
20	76	4	N	Total Number of the Records of Matching Data Frame	8)	a
21	80	4	N	Default POI Information Number	9)	a
22	84	4	SWS	Next-level Data Frame Size	10)	a
23	88	4	D	Address to Next-level Data Frame	10)	a
24	92	B1		Character Information Data List for Representation Item	11)	a
25	O1	B2		A Sequence of Addresses to the Additional Frame (#1 to #n)	3)	c
26	O2	B3		Expansion Field		c
27	O3	B4		Padding Field		c

Note: Items 25 and 26 are optional in this detailed search information record since their areas can be determined by items 5, 7, 16, and 18. However, the detailed search information record size specified in the management frame header of the higher search frame must be satisfied by items 25 to 27.

1) Expansion Field Size and Offset

The field describes the displacement from the top of the applicable detailed search information record to the top of the expansion field as the offset to the expansion field. Since this example does not have an expansion field, the invalid values are assigned to the size and offset.

2) These fields describe the total size of the target data frame.

3) These fields describe the address of the target data frame according to the representation format of 7) in Section 11.A.2.1.2.

4) This field describes the size of the category parent record.

5) This field describes the size of a single category option record.

6) Size, Number of Option Items, and Offset of First-level Category

These fields describe the displacement from the top of the category (including all the option items) size, number of option items, and category data frame to be read first. For the second- and subsequent-level category tables, the record size, number of option items, and offset should be specified in the parent record of the actual data.

7) Size of the Record of Matching Data Frame

This field describes the maximum record size of the target matching data frame.

8) Total Number of Records of Matching Data Frame

This field describes the total number of records in the target matching data frame.

9) Default POI Information Number

POI information is not directly referred to in this specification, so the invalid value 0 is assigned to this field.

#### 10) Next-level Data Frame Size and Address

In this example, specify the displacement specified in the search frame management frame in Section 11.A.2.7.2, "Entrance and exit search frame" for the next level.

#### 11) Character Information Data List for Representation Item

This field describes a search name, which is determined by the function specifications of the system.

ex) English: "FREE WAY"

#### 11.A.2.7.1.3. Category Definition Frame

No.	Usage	Description type	Description type declaration	Number of data items	Additional information	Comment	Remarks	Classification
1	'DCTF'	'REAL'	-	-	(8)	Definition Field Declaration		a
2	'FNST'	'OFST'	'LG'	1	-	Offset to Matching Data		a
3	'FNCT'	'NORM'	'UL'	1	-	Matching Data Count		a
4	'FNLT'	'NORM'	'UL'	1	-	Number of Matching Lists		a
5	'SELN'	'NORM'	'UB'	1	-	Number of Option Items		a
6	'DCSF'	'REAL'	-	-	(3)	Option Definition Field Declaration		a
7	'KYCH'	'NORM'	'UB'	1	-	Character Search Key	1)	a
8	'NEXT'	'OFST'	'LG'	1	-	Offset to Next Category		a
9	'NTSZ'	'NORM'	'UW'	1	-	Next Category Size	2)	c

- 1) For the character search key, specify an alphabet character (that conforms to ISO-8859).
- 2) When no value is specified, the application reads the next category using the maximum size calculated according to the maximum value for the option records.

#### 11.A.2.7.1.4. Category Data Frame

name [Freeway Search Category Data Frame]

No.	offset	Data length	Data type	Item name	Remarks	Classification
1	0	B1		Freeway Search Category Table		a

#### 11.A.2.7.1.4.1. Category Table

name [Freeway Search Category Table]

No.	offset	Data length	Data type	Item name	Remarks	Classification
1	0	4		Freeway Search Category Parent Record		a
2	4	B2		A Sequence of Freeway Search Category Option(child) Records		a

Note: Category tables (option records) are placed in order of character search key.

name [Freeway Search Category Parent Record]

No.	offset	Data length	Data type	Item name	Remarks	Classification
1	0	4	D	Offset to Matching Data		a

No.	offset	Data length	Data type	Item name	Remarks	Classification
2	4	4	N	Matching Data Count		a
3	4	4	N	Number of Matching Lists		a
4	12	1	N	Number of Option Items		a
5	13	1	BR	Padding Field		c

name [Category Option(child) Record of Freeway Search]

No.	offset	Data length	Data type	Item name	Remarks	Classification
1	0	1	N	Character Search Key		a
2	1	4	D	Offset to Next Category		a
3	5	2	SWS	Next Category Size		a
4	7	1	BR	Padding Field		c

#### 11.A.2.7.1.5. Matching Data Definition Frame

No.	Usage	Description type	Description type declaration	Number of data items	Additional information	Comment	Remarks	Classification
1	'DCTF'	'REAL'	-	-	(9)	Definition Field Declaration		a
2	'BFRL'	'FDRL'	'UB'	1	-	Relation to the Top of the Previous Record Forward Relation from the Top of this Record		a
3	'NFRL'	'FDRL'	'UB'	1	-	Relation to the Top of the Following Record Backward Relation from the Top of this Record		a
4	'FGFZ'	'NORM'	'UB'	1	-	Fuzzy Search Flag	1)	c
5	'LGNO'	'NORM'	'UB'	1	-	Language Number	2)	c
6	'KYCH'	'VRBL'	'CH'	'UB'	'CMCH'	Character Search Key	3)	a
7	'NAME'	'VRBL'	'CH'	'UB'	'CMCH'	Name (Representation Name)	4)	c
8	'NXKD'	'NORM'	'UH'	1	-	Next-level Data Frame Type	5)	a
9	'NXFN'	'NORM'	'UH'	1	-	Next-level Data Frame Number	5)	a
10	'NXST'	'OFST'	'LG'	1	-	Offset to Next-level Data Frame		a

1) If there are no fuzzy names concerning all the street names, do not specify this field. In that case, the classification is 'c.'

2) This field describes the freeway search name as the character search key.

3) This field describes the language number corresponding to the META definition.

Describes the language number corresponding to the target record. It is allowed to omit it when it is the same with the default language number implicitly declared at a higher level.

4) It is unnecessary to specify the representation name when it is same with the character search key.

For a freeway that has the same name with the character search key, it is allowed to specify 0 for the number of characters for the "Name" to use the character search key for a representation.

If all the freeway names are the same with the character search keys, do not specify this item. In that case, the classification is 'c.'

- 5) These fields describe the entrance and exit search frame category (NXKD=4: Next-level search category, NXFN=1: Detailed search information record number) for the next-level data frame.

#### 11.A.2.7.1.6. Matching Data Frame

name [Matching Data Frame of Freeway Search]

No.	offset	Data length	Data type	Item name	Remarks	Classification
1	0	B1		A Sequence of Matching Records of Freeway Search		a

Note: The sequence in the applicable table is in order of character search key (with numeral order considered) and name.

name [Matching Record of Freeway Search]

No.	offset	Data length	Data type	Item name	Remarks	Classification
1	0	1	D	Relation to the Top of the Previous Record Forward Relation from the Top of this Record		a
2	1	1	D	Relation to the Top of the Following Record Backward Relation from the Top of this Record		a
3	2	1	B:N	Fuzzy Search Flag		c
4	O1	1	N	Language Number		c
5	O2	B1	N:C	Character Search Key		a
6	O3	B2	N:C	Name (Representation Name)		c
7	O4	1/2	N	Next-level Data Frame Type		a
8	O5	1/2	N	Next-level Data Frame Number		a
9	O6	4	D	Offset to Next-level Data Frame		a

#### 11.A.2.7.2. Entrance and Exit Search Frame

##### 11.A.2.7.2.1. Management Frame of Search Frame

name [Management Frame of Entrance and Exit Search Frame]

No.	offset	Data length	Data type	Item name	Remarks	Classification
1	0	16		Management Frame Header of Entrance and Exit Search Frame		a
2	16	X		Detailed Entrance and Exit Search Information Record - #1		a

#### 11.A.2.7.2.1.1. Management Frame Header of Search Frame

name [Management Frame Header of Entrance and Exit Search]

No.	offset	Data length	Data type	Item name	Remarks	Classification
1	0	4	C	Data Declaration	'DFSR'	a
2	4	4	N	Category and Matching Data Count - G (Number of Detailed Search Information Records)	=1	a
3	8	4	SWS	Detailed Search Information Record Size	1)	a
4	12	4	D	Offset to the Top of Detailed Search Information Record-	2)	a

- 1) This field describes the size for one detailed search information record.
- 2) This field describes the displacement from the top of the search frame management frame to the top of the detailed search information record.

#### 11.A.2.7.2.2. Detailed Search Information Record

name [Entrance and Exit Detailed Search Information Record]

No.	offset	Data length	Data type	Item name	Remarks	Classification
1	0	4	C	Data Declaration	'SRRP'	a
2	4	4	SWS	Expansion Field Size	1)	a
3	8	4	D	Offset to Expansion Field	1)	a
4	12	4	SWS	Category Definition Frame Size	2)	a
5	16	4	D	Address to Category Definition Frame	3)	a
6	20	4	SWS	Category Data Frame Size	2)	a
7	24	4	D	Address to Category Data Frame	3)	a
8	28	4	C	Default Keyboard Designation	'NORM'	a
9	32	4	SWS	Category Parent Record Size	4)	a
10	36	4	SWS	Category Option Record Size	5)	a
11	40	4	SWS	First-level Category Size	6)	a
12	44	4	N	Number of the Option Items of First-level Category	6)	a
13	48	4	D	Offset to First-level Category	6)	a
14	52	4	C	Keyboard Designation for First-level Category	'KBPL'	a
15	56	4	SWS	Matching Data Definition Frame Size	2)	a
16	60	4	D	Address to Matching Data Definition Frame	3)	a
17	64	4	SWS	Matching Data Frame Size	2)	a
18	68	4	D	Address to Matching Data Frame	3)	a
19	72	4	SWS	Size of the Record of Matching Data Frame	7)	a
20	76	4	N	Total Number of Records of Matching Data Frame	8)	a
21	80	4	N	Default POI Information Number	9)	a
22	84	4	SWS	Next-level Data Frame Size	10)	a
23	88	4	D	Address to Next-level Data Frame	10)	a
24	92	B1		Character Information Data List for Representation Item	11)	a

No.	offset	Data length	Data type	Item name	Remarks	Classification
25	O1	B2		A Sequence of Additional Data Frame Address(es) (#1 to #n)	3)	c
26	O2	B3		Expansion Field		c
27	O3	B4		Padding Field		c

Note: Items 25 and 26 are optional in this detailed search information record since their areas can be determined by items 5, 7, 16, and 18. However, the detailed search information record size specified in the management frame header of the higher search frame must be satisfied by items 25 to 27.

1) Expansion Field Size and Offset

The field describes the displacement from the top of the applicable detailed search information record to the top of the expansion field as the offset to the expansion field.

No expansion field exists in this specification, the invalid values are assigned to these fields.

2) These fields describe the total size of the target data frame.

3) These fields describe the address of the target data frame according to the representation format of 7) in Section 11.A.2.1.2.

4) This field describes the size of the category parent record.

Since the record length is variable, describe the maximum record size of the target data frame.

5) This field describes the size of a single category option record.

Since the record length is variable, describe the maximum record size of the target data frame.

6) Size, Number of Option Items and Offset of First-level Category

The invalid values are assigned to the fields "number of option items of first-level category" and "offset to first-level category". The maximum record size is assigned to the field "record size of first-level category".

7) Size of the Record of Matching Data Frame

No record of matching data frame exists in this specification, so the invalid value 0 is assigned to this field.

8) Total Number of the Records of Matching Data Frame

No record of matching data frame exist in this specification, so the invalid value 0 is assigned to this field.

9) Default POI Information Number

In this specification, specify the freeway POI Information frame number.

10) Next-level Data Frame Size and Address

Since this example does not contain any next-level data frames, specify the invalid value 0

It is allowed to specify the invalid value using the additional frame address.

11) Character Information Data List for Representation Item

This field describes a search name, which is determined by the function specifications of the system.

ex) English: "FREE WAY/RAMP"

#### 11.A.2.7.2.3. Category Data Definition Frame

No.	Usage	Description type	Description type declaration	Number of data items	Additional information	Comment	Remarks	Classification
1	'DCTF'	'REAL'	-	-	(15)	Definition Field Declaration		a
2	'SFTO'	'OFST'	'LG'	1	-	Offset to the Top of Option Record		a
3	'SFBO'	'OFST'	'LG'	1	-	Offset to the End of Option Record		a
4	'SEFG'	'NORM'	'UB'	2	-	Option Record Storage Data Flag		a
5	'SELN'	'NORM'	'UL'	1	-	Number of Option Items		a
6	'DCSF'	'REAL'	-	-	(10)	Option Record Definition Field Declaration		a
7	'BFRL'	'FDRL'	'UB'	1	-	Relation to the Top of the Previous Record Forward Relation from the Top of this Record	1)	a
8	'NFRL'	'FDRL'	'UB'	1	-	Relation to the Top of the Following Record Backward Relation from the Top of this Record	1)	a
9	'KYCH'	'NORM'	'UB'	1	-	Character Search Key	2)	a-c
10	'LGNO'	'NORM'	UB	1	-	Language Number	3)	c
11	'NAME'	'VRBL'	'CH'	'UB'	'CMCH'	Name (Representation Name)	4)	a
12	'RLXY'	'VRBL'	'BT'	'UH'	'CMP6'	Latitude and Longitude		a-c
13	'NXKD'	'NORM'	'UH'	1	-	Next-level Data Frame Type	5)	a
14	'NXFN'	'NORM'	'UH'	1	-	Next-level Data Frame Number	5)	a
15	'NXST'	'OFST'	'LG'	1	-	Offset to Next-level Data Frame	6)	a
16	'NXSZ'	'NORM'	'LG'	1	-	Next-level Data Frame Size	7)	c

- 1) These fields describe the displacement from the top of the target data record to the previous or following record as the field relation.

When there are no previous and following records, specify invalid value 0 (NULL).

- 2) This field describes the character search key.

The setting is different from the first-level and second-level category tables, thus the details of the setting are described later.

- 3) This field describes the language number corresponding to the META definition.

Specify the language number corresponding to the target record. It is allowed to omit it when it is the same with the default language number implicitly declared at a higher level.

- 4) This field describes a name that can be displayed on the screen.

- 5) In the next-level data frame type and number, specify the following:

First-level category: NXKD=1, NXFN=0 (Second layer: Specify the layer on which the entrance and exit name is selected)

Second-level category: NXKD=3, NXFN=0 (specify the freeway POI Information)



When the invalid value is specified for the POI information number and if this field is disabled, the unit refers to the target detailed search information record: Default POI information number.

- 6) For the next-level data frame offset, specify following:

First-level category: Displacement from the top of the target category data frame to the top of the next-level category.

Second-level category: Displacement from the top of the target POI information data frame to the top of the target record.

- 7) This field describes the size of the next-level data to be read. When no value is specified, the application reads the next-level data using the maximum size used to store a detailed search information record.

#### 11.A.2.7.2.4. Category Data Frame

name [Category Data Frame of Entrance and Exit Search]

No.	offset	Data length	Data type	Item name	Remarks	Classification
1	0	B1		A Sequences of Category Tables of Entrance and Exit Search		a

##### 11.A.2.7.2.4.1. Category Table

name [Category Table of Entrance and Exit Search]

No.	offset	Data length	Data type	Item name	Remarks	Classification
1	0	B1		Category Parent Record of Entrance and Exit Search		a
2	4	B2		A Sequence of Category Option(child) Records of Entrance and Exit Search		a

name [Category Parent Record of Entrance and Exit Search]

No.	offset	Data length	Data type	Item name	Remarks	Classification
1	0	4	D	Offset to the Top of Option Record		a
2	4	4	D	Offset to the End of Option Record		a
3	8	2	B	Option Record Storage Data Flag		a
4	10	4	N	Number of Option Items		a
5	14	1	BR	Padding Field		c

name [Category Option(child) Record of Entrance and Exit Search]

No.	offset	Data length	Data type	Item name	Remarks	Classification
1	0	1	D	Relation to the Top of the Previous Record Forward Relation from the Top of this Record		a
2	1	1	D	Relation to the Top of the Following Record Backward Relation from the Top of this Record		a
3	2	1	C	Character Search Key		a
4	O1	1	N	Language Number		c
5	O2	B1	N:C	Name (Representation Name)		c

6	O3	B2	N:N:N:N	Latitude and Longitude		c
7	O4	1/2	N	Next-level Data Frame Type		a
8	O5	1/2	N	Next-level Data Frame Number		a
9	O6	4	D	Offset to Next-level Data Frame		a
10	O7	4	SWS	Next-level Data Frame Size		c
11	O8	1	BR	Padding Field		c

#### 11.A.2.7.2.5. Rules for Entrance and Exit Search Frame Category Data Storage

##### 11.A.2.7.2.5.1. Category Option Record Storage Contents

The table below shows the example of settings.

No.	Usage	First level	Second level	Classification
1	'KYCH'	0x80: Entrance 0x81: Exit	Ramp name One character at the top	c
2	'NAME'	'Entrance' or 'Exit' <sup>1</sup>	Ramp name	a
3	'RLXY'	x		c

##### 11.A.2.7.2.5.2. Category Option Record Storage Order

First-level category: Entrance first, then exit

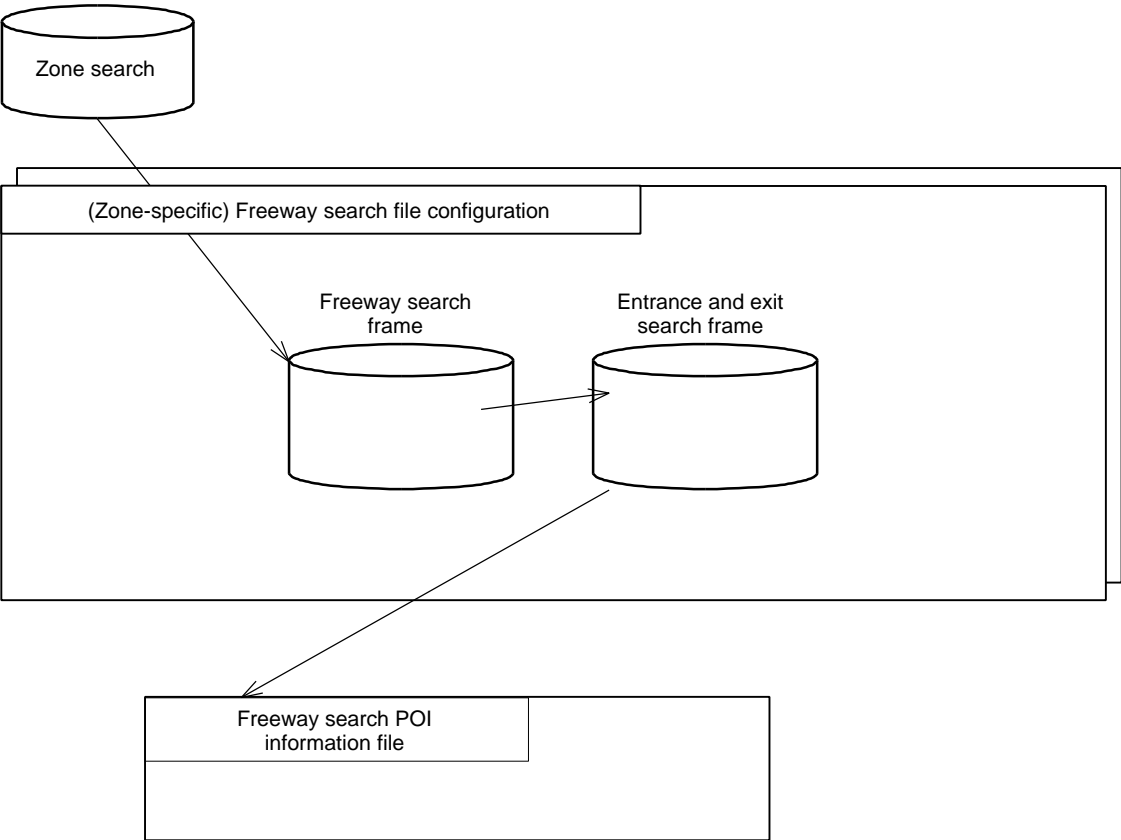
Second-level category: Alphabetical order (default language numbers)

#### 11.A.2.7.3. Freeway Search Structure

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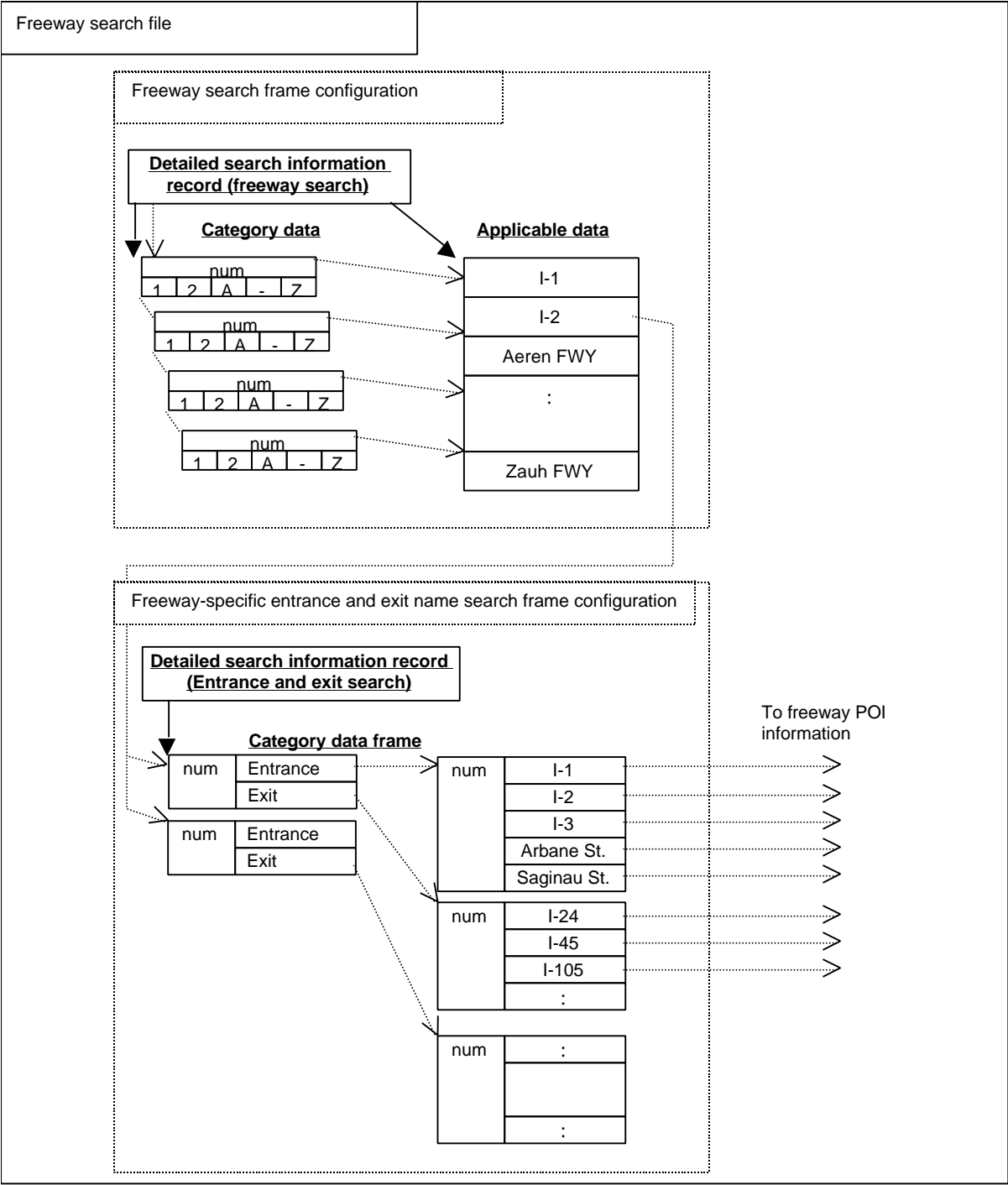
<sup>1</sup> Name in English

11.A.2.7.3.1. File Configuration of Freeway Search



File Configuration of Freeway Search

11.A.2.7.3.2. Freeway Search Frame Structure



Freeway Search Structure