
User Manual



Service Argos, Inc. ■

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The Argos system evolves constantly.

The information contained in this manual is therefore subject to change without notice, and shall not be construed as binding on CLS/Service Argos.

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USER MANUAL UPDATES



This manual is regularly updated.
This page summarizes the changes made since the November 1988 release (Version 1).
It is included each time modified pages or chapters are sent to users.

To see whether your document is up to date, just check the dates at the bottom of the pages or chapters concerned against those listed below:

Date	Chapter	Pages
May 1990	Overview	7 - 10
May 1990	1	1 - 2
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3.2.6 - DOWNLOADING RESULTS IN DS FORMAT

Command PRV provides DS-format results for one or more platforms operated in a program you own.

Use it to select the results you wish to download by entering the platform numbers and message reception dates.

COMMAND PRV

Enter the command as follows:



Selected program number

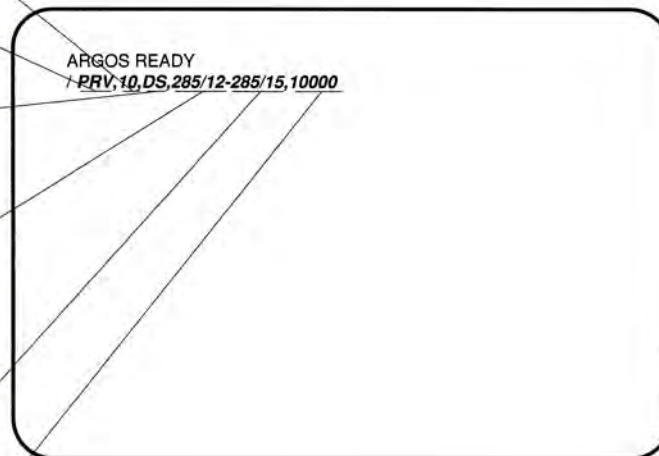
Command PRV: a request for DS-format results

Provides results in DS format

285/12 selects results received since that date, where 285 is the calendar day and 12:00 the time. Default value: current day at 00:00.

285/15 selects the results received until that date, where 285 is the calendar day and 15:00 the time. Default value: current day and time.

10000 is the chosen platform number.



The above command was executed on September 13, 1987 (calendar day: 286). The dates entered in the command (285/12 - 285/15) are obviously examples only and in practice will depend on the date of your interrogation.

Press Carriage Return; the following results appear:

	ARGOS READY															
	/ <i>PRV,10,DS,285/12-285/15,10000</i>															
Basic platform data	00010	5	10000	4	13798	87	285	13	36	02	2	-1	2	180	401650000	001
Platform location data	00010	3			43.545	1.401								180	401649564	002
Platform sensor data	00010	13798	13	33	20	1	0.99875E+3	32	0.20000E+2	0.32000E+2						003
	00010	13798	13	40	46	2	0.10486E+4	00	0.20000E+2	0.32000E+2						004
	00010	13798	13	41	46	1	0.99875E+3	32	0.20000E+2	0.32000E+2						005
	ARGOS READY															
	/															

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Location date in Julian days, i.e. platform was located on 130,789th day starting from baseline of January 1, 1950, i.e. October 12, 1987.

Number of sensors

Platform ID number

Number of lines in result

Program number

Year in which location was calculated

Calendar day

Time of location (HH MM SS) in UTC time

Requested location class

Type of platform (for further information, refer to Reference Manual)

Letter identifying satellite that received message (NOAA-F)

Initial altitude of platform in meters

Nominal transmit frequency

Line number



Line 1: Basic platform data

ARGOS READY
/ **PRV,10,DS,285/12-285/15,10000**

00010 5 10000 4 13798 87 285 13 36 02 2 -1 F 180 401650000 001

00010 3 43.545 1.401 180 401649564 002

00010 13798 13 33 20 1 0.99875E+3 32 0.20000E+2 0.32000E+2 003

00010 13798 13 40 46 2 0.10486E+4 00 0.20000E+2 0.32000E+2 004

00010 13798 13 41 46 1 0.99875E+3 32 0.20000E+2 0.32000E+2 005

ARGOS READY
/

Line 2: platform location data

ARGOS READY
/ **PRV,10,DS,285/12-285/15,10000**

00010 5 10000 4 13798 87 285 13 36 02 2 -1 2 180 401650000 001

00010 3 43.545 1.401 180 401649564 002

00010 13798 13 33 20 1 0.99875E+3 32 0.20000E+2 0.32000E+2 003

00010 13798 13 40 46 2 0.10486E+4 00 0.20000E+2 0.32000E+2 004

00010 13798 13 41 46 1 0.99875E+3 32 0.20000E+2 0.32000E+2 005

ARGOS READY
/



Line 3: platform sensor data

Compression index	ARGOS READY																				
Time of data collection (HH MM SS)	/ PRV,10,DS,285/12-285/15,10000																				
Date of data collection in Julian days (Oct. 12, 1987)	00010	5	10000	4	13798	87	285	13	36	02	2	-1	2	180	401650000	001					
Program number	00010	3	43,545	1,401										180	401649564	002					
Sensor # 1 value	00010	13798	13	33	20	1	0.99875E+3	32	0.20000E+2	0.32000E+2	003										
Sensor # 2 value	00010	13798	13	40	46	2	0.10486E+4	00	0.20000E+2	0.32000E+2	004										
Sensor # 3 value	00010	13798	13	41	46	1	0.99875E+3	32	0.20000E+2	0.32000E+2	005										
Sensor # 4 value	ARGOS READY																				
Line number																					

Lines 4 and 5: other data collection messages received during same satellite overpass.
Same format as line 3.



To request on-line information on command PRV, enter "? ,PRV" or "HELP,PRV", and a Carriage Return.

To abort the current command, enter "A".


To interrupt the current command, enter "I" (uppercase). To resume, press Carriage Return.

The options available under command PRV in DS format are the same as those described above in § 3.2.5 ("Downloading results in TX format").

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LOCATION CLASSES

The location classes are defined as follows:

	Required conditions	Accuracy (1)
Class 3	<ul style="list-style-type: none">- At least seven minutes between first and last message of pass- At least five messages received- Very good oscillator stability- Very good geometric configuration	Location accuracy : 150 m (1 st. dev.) (2) <div>(1) on each coordinate (2) varies with sunspot activity</div>
Class 2	<ul style="list-style-type: none">- At least seven minutes between first and last message of pass- At least five messages received- Good oscillator stability	Location accuracy : 350 m (1 st. dev.)
Class 1	<ul style="list-style-type: none">- At least four minutes between first and last message of pass- At least four messages received- Reasonable oscillator stability	Location accuracy : 1 km (1 st. dev.)
Class 0* 	<ul style="list-style-type: none">- At least two messages received during pass <p><i>*This service is only available through North American CLS, Inc. (NACLS).</i></p>	Quality of results, to be determined by user, depends on number of messages processed.

The stated accuracies are achieved for over 66% of results.

ARGOS DATA BANK AND THE DS FORMAT:

The platform is location-type (i.e. data collection and location).

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Each record is split into variable-length fields corresponding to non-compressed DS format lines (for more information on DS format, refer to § 3.2.6).

The following example relates to the DS-format results. The platform is a data-collection-only type.

1	10	20	30	40	50	60	70	80
5	15	25	35	45	55	65	75	
1 result								
00010	9	10001	28	0	-8	H	0.100	401650000
00010		NO	LOCATION					0001
00010	14434	12	58	11	3			0002
00010					03		45	0003
00010					18		203	0004
00010					32		05	0005
00010					00		73	0006
00010					32		65	0007
00010					84		00	0008
00010					125		98	0009
00010	14434	13	01	31	1			000A
00010					18		203	000B
00010					32		05	000C
00010					00		73	000D
00010					32		65	000E
00010					84		00	000F
00010					125		98	000G
00010					03		45	000H

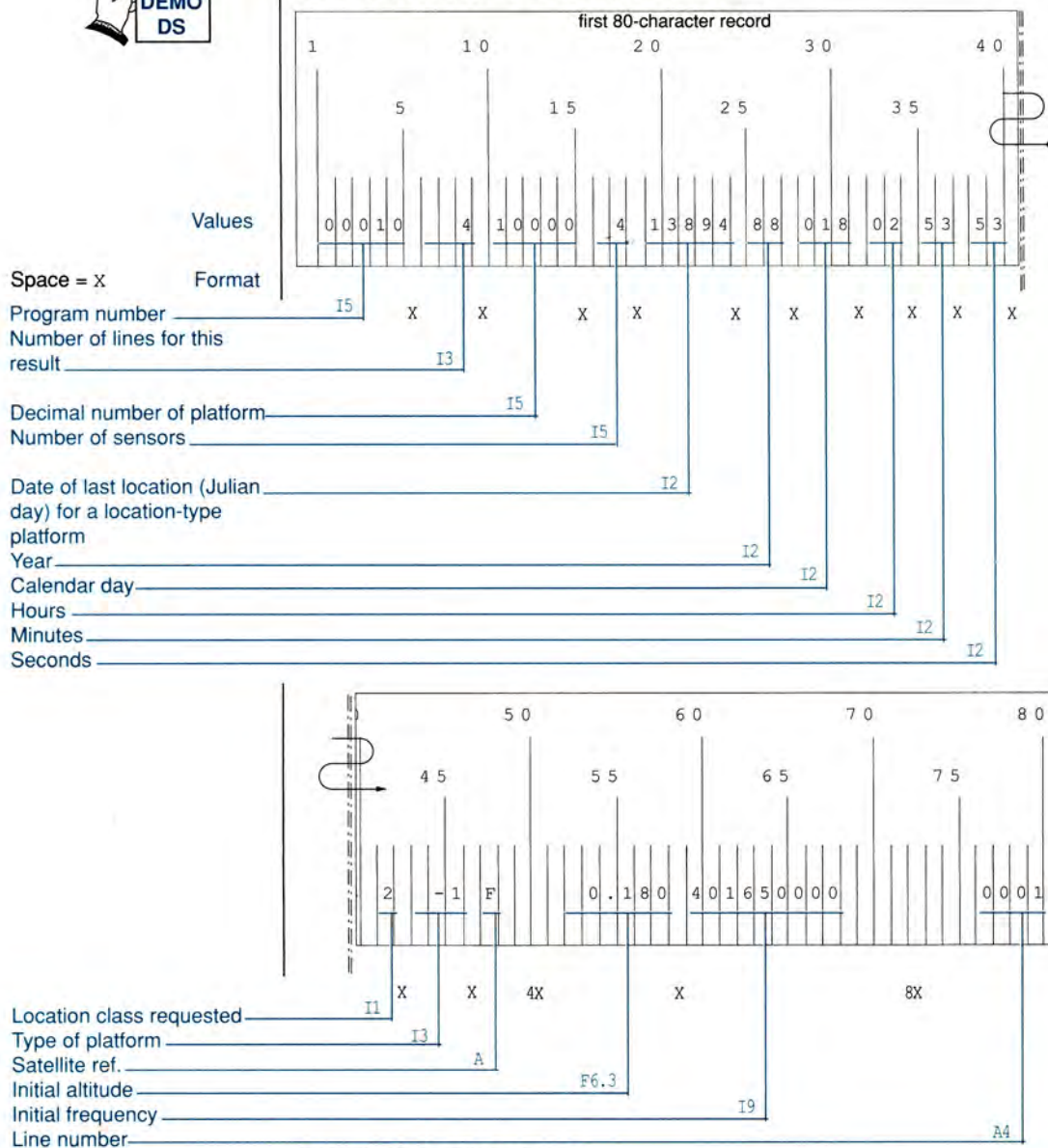


In the following pages, unassigned characters or spaces
(space = X) are inserted in black, on the same line, for each
record.

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The first record is as follows :



Format of complete line :

I5 X I3 X I5 X I2 X I5 X I2 X I3 X I2 X I2 X I2 X I1 X I3 X A 4X F6.3 X I9 8X A4

Items 2, 3, 4 and 11 in this first record are important items of “housekeeping” information :

- Item 2 states the number of lines (records) in the result, four in the example above.

- Item 3 identifies the platform in terms of its decimal number, 10 000 in the example above.

The appropriate read format and processing operations can thus be applied, and the results supplied in accordance with the options you specified in your Technical File (see § 2.3.1, Simplified Technical File).

- Item 4 states the number of sensors, i.e. the number of measurements to be supplied.

Given that a record contains at the most four sensor outputs, the number determines the number of lines taken up by the sensor outputs, i.e. the data collection message.

In the example above, the number of sensors is 4, and the data collection message takes up exactly one line.

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- Item 11, location class requested, should be interpreted as follows:

- * if the value is 0, 1, 2 or 3, the platform is location-type; further information will be provided in the second record, concerning location;

- * if the value is empty (a blank), the platform is a data-collection-only platform, and the second record need not be considered.

From the “number of lines” and “number of sensors” information, you can determine the number of data collection messages contained in the result.

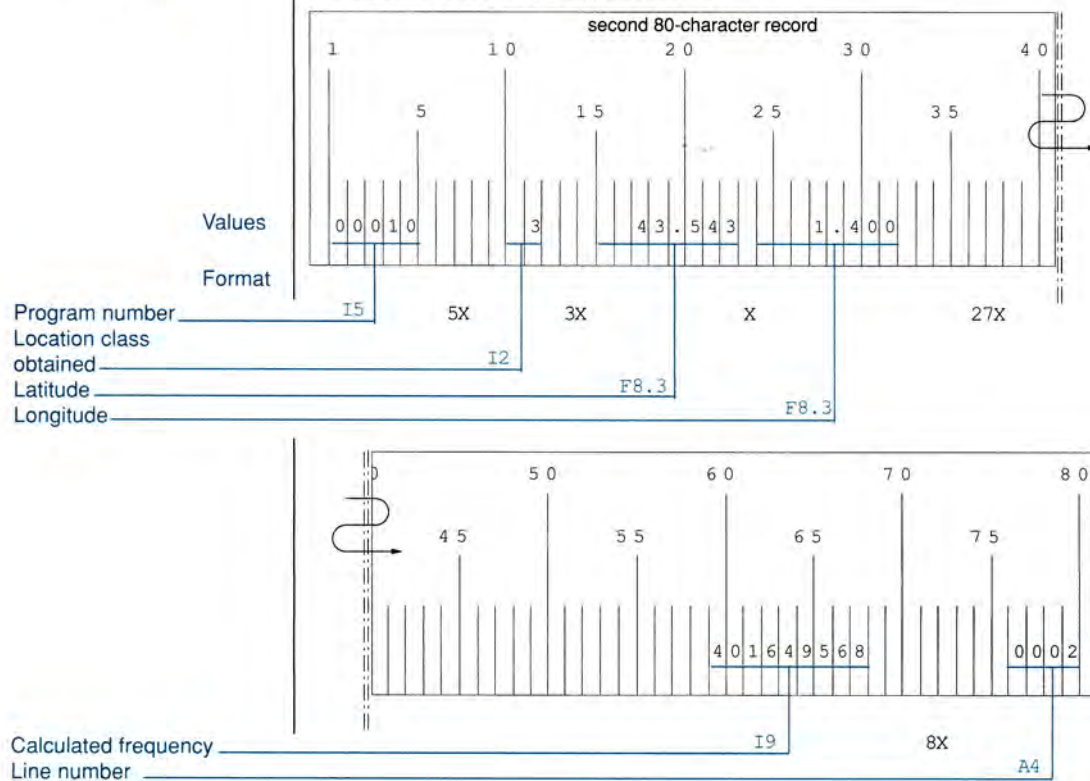
In the example above, there are four lines in the result, and the data collection message takes up one line. Apart from the first two lines (platform data and location data), two lines remain. This satellite pass thus provided two data collection messages.

The last field of each record is the line number, to base 36. It increments from the start of the file through to the end.



The format of the second record is as follows :

- For a location-type platform :



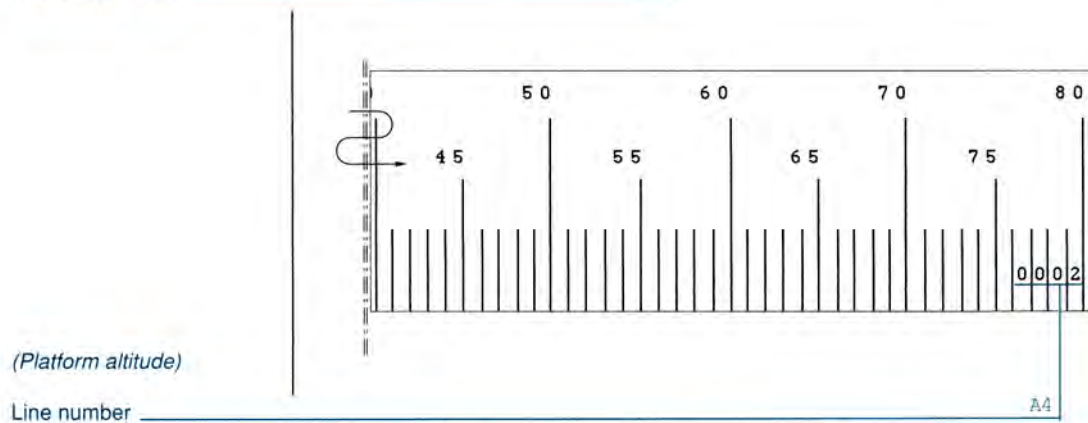
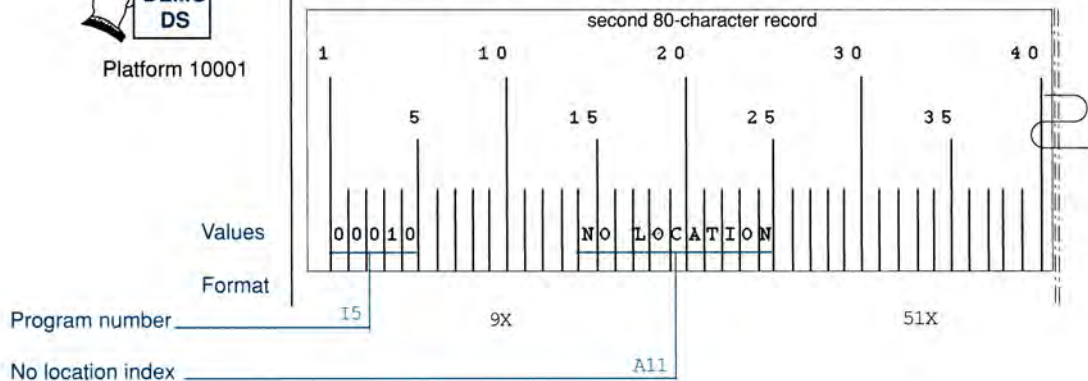
Format of complete line :
 I5 5X I2 3X F8.3 X F8.3 27X I9 8X A4

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Platform 10001

For a data-collection-only platform :



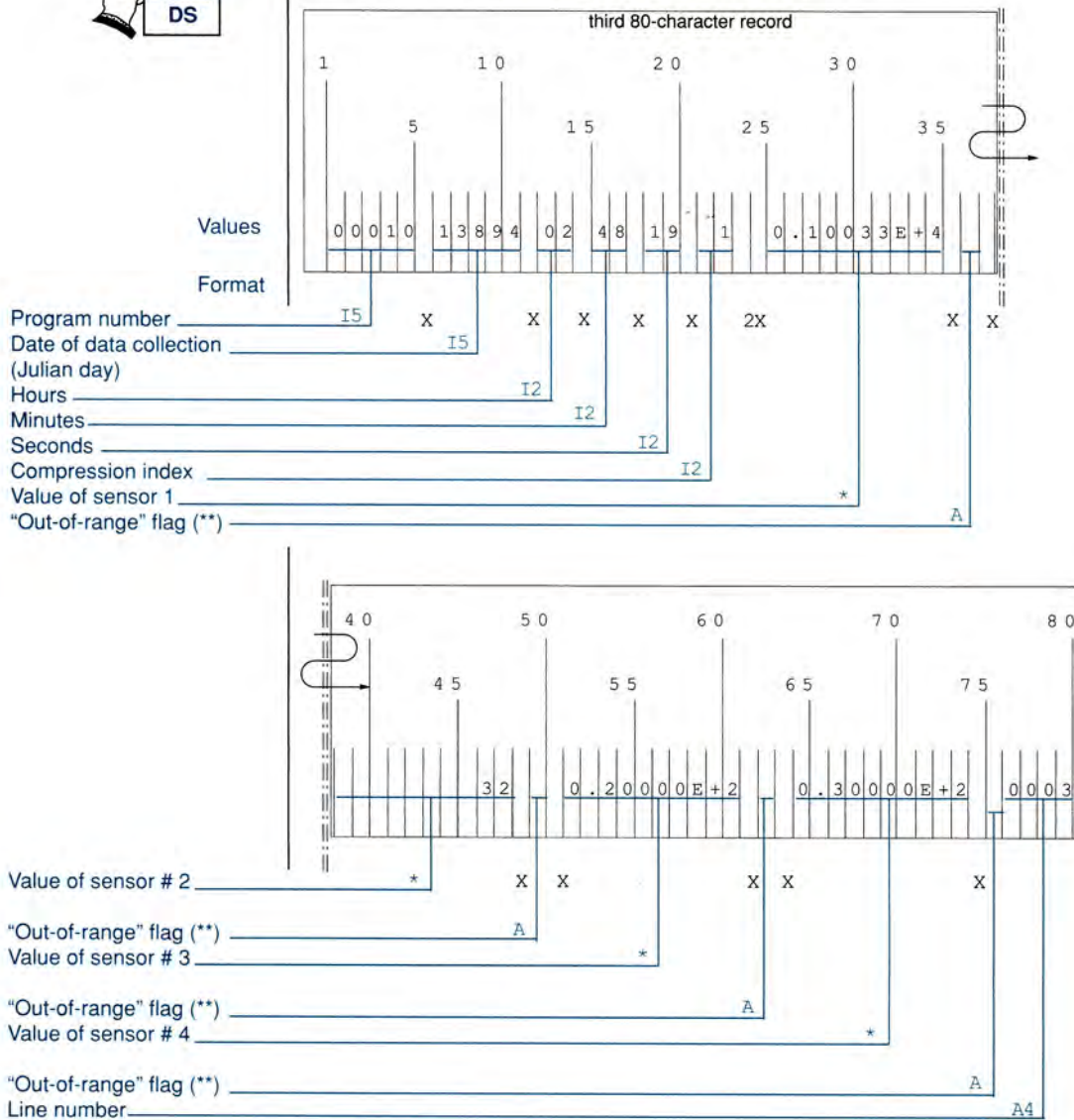
Format of complete line :
I5 9X A11 51X A4

The data collection message is grouped in the following records.

The data collection message starts with a line in the same format as the third record, as described below.



The format of the third record is as follows :

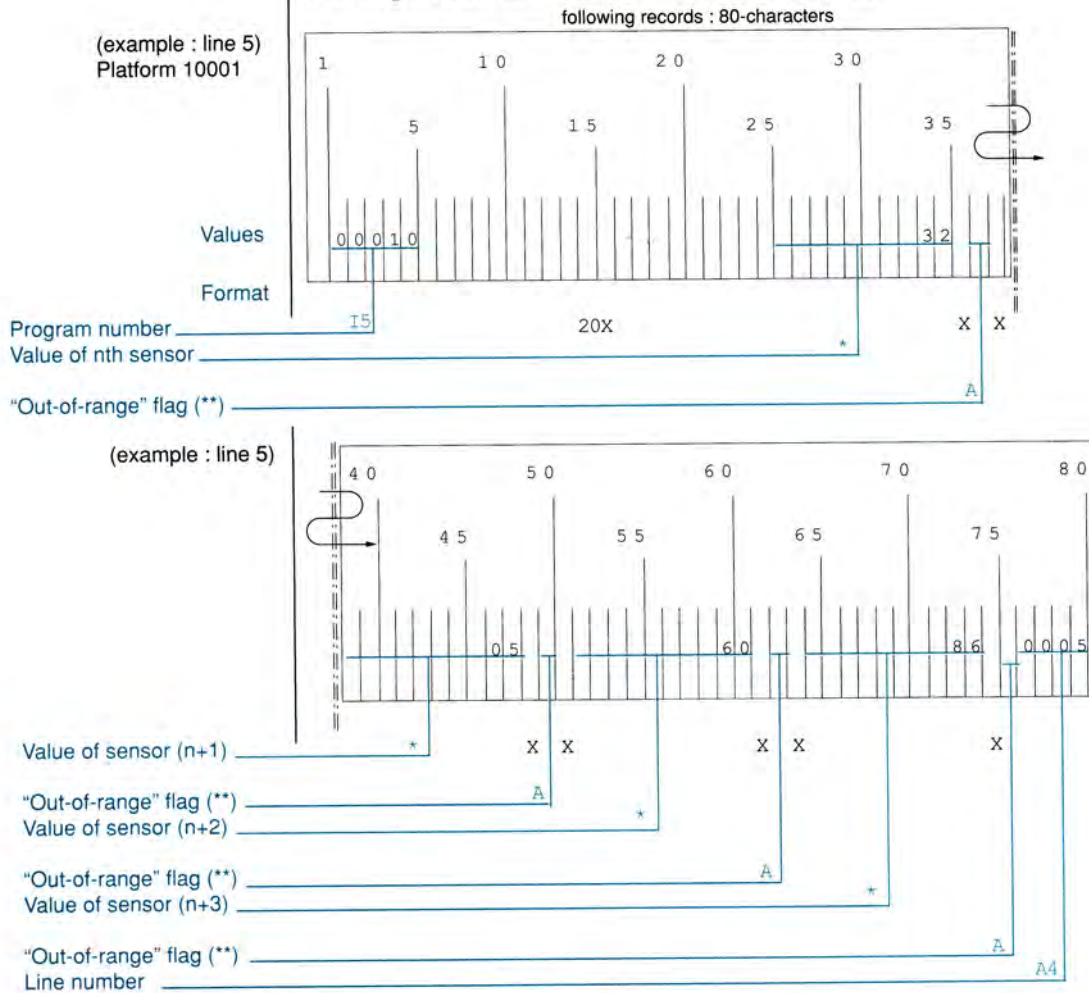


Format of complete line :

I5 X I5 X I2 X I2 X I2 X I2 2X * X A X * X A X * X A X * X A A4

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Description of the next record is as follows:



Format of complete line :

I5 20X * X A X * X A X * X A X * X A A4

** This is in fact flagged by a question mark (?) if the value preceding it is outside the range you defined in your Technical File (for further information, refer to § 2.3.1).

The area is empty (three "blanks") if the value is within range.

3.2.9 - COMMANDS SPECIFIC TO LOCATION CLASS 0 *

The commands and options given in this chapter are reserved for users operating platforms located with accuracy class 0. These features provide additional location information. The purpose of command MOD is to modify the parameters used in the location calculation.

The examples below do not belong to program # 10.

COMMAND PRV/A*

Adding option A to command PRV provides additional location information.

Location Indicator (*)
 Computed transmit frequency for this platform is 401,649,959.4 Hz
 Best signal strength
 Total number of messages received
 Number of messages received with signal strength > -120 dB
 First location solution
 Second location solution

```

ARGOS READY
/ PRV/A,1Z,TX,342/10-342/13,16000
16000 53.641N 61.932W 0 342/1051Z-342/1049
(2) 166 71 00 72
008.msgs 000>-120db Best:-120 Freq:649959.4 LI:-2
Lat1: 53.641N Lon1: 61.933W Lat2: 44.737N Lon2: 15.278W
ARGOS READY
/
    
```

* This service is only available through North American CLS, Inc. (NACLS).

The result indicates that the location accuracy class for this platform is 0, the location date being close to the data collection date.

You are also informed of the two possible location solutions.

Use your own knowledge to select the result you think the more likely.

Class-0 locations are assigned a location indicator (LI). This tells you why higher accuracy was not achieved.

Location indicator (LI)	Meaning
0	Number of messages received ≥ 4 , but less than 240 seconds between start and end of pass.
- 1	Number of messages received ≥ 4 , and - either: messages are bunched at start or end of pass, - or: excessive oscillator drift during pass.
- 2	3 messages received. Last location less than 12 hours old.
- 3	3 messages received. Last location more than 12 hours old.
- 4	2 messages received. Last location less than 12 hours old.

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- 5	2 messages received. Last location more than 12 hours old.
- 6	Location impossible: - either: just one message received, - or: geometric initialization aborted.
- 7	Location rejected: unacceptable distance from ground track.
- 8	Location rejected: unsatisfactory internal consistency.
- 9	Location rejected: excessive long-term oscillator drift.
- 10	Location rejected: location or choice of solution impossible.

In each case, two location solutions are provided, unless the LI is -6.

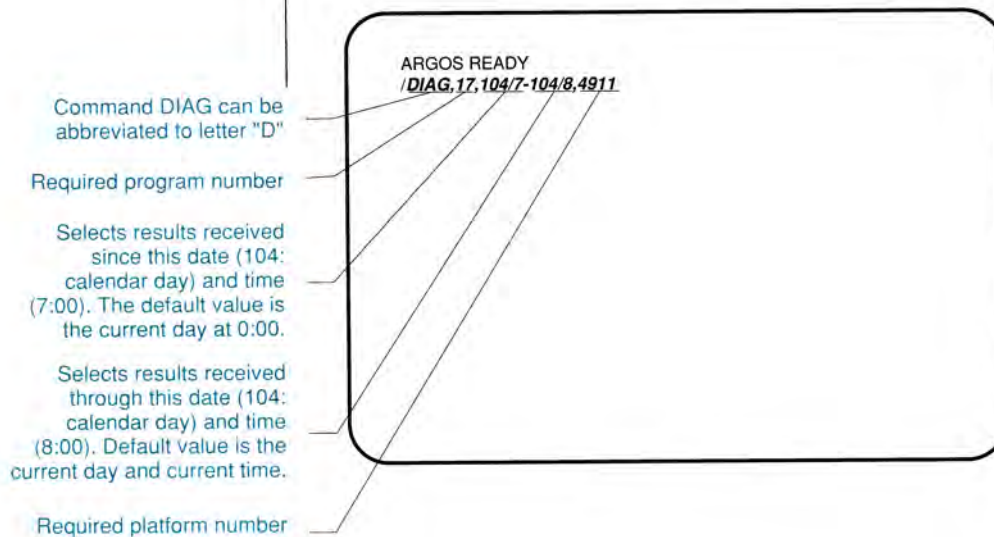
The first solution is considered more probable.

COMMAND DIAG*

Command DIAG provides the most significant result per satellite pass (one message per pass). It uses a special format and provides supplemental platform location information.

DIAG provides the results for the current day and the four previous days.

Enter the command as follows:



** This service is only available through North American CLS, Inc. (NACLS).*

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Press Carriage Return.
The results are displayed as follows:

Required program number
Required platform number
Date of location in UTC,
expressed in days (11), month
(10), year (88), hours (05),
minutes (54), and seconds (54).
Location accuracy class
for this location
Location indicator (see
earlier in § 3.2.9).
Appears when location
class is 0.

```
ARGOS READY
/ DIAG,17,104/7-104/8,4911

PROG 17
4911 Date : 11:10:88 05:54:54 LC : 0 LI : -1
Lat1 : 54.917N Lon1 : 71.301W Lat2 : 44.942N Lon2 : 19.265W
Nb mes : 010 Nb mes> -120 Db : 005 Best level : -124 Db
Pass duration : 420 s Dist track : 16°
Calcul freq : 401 649.510 Khz Altitude : 2000 m
0.10450E+4 255 0.25500E+3? 0.79600E+2

ARGOS READY
/
```

Second location solution
First location solution
Total number of
messages received
Number of messages
received with signal strength
higher than -120 dB
Best signal strength

```
ARGOS READY
/ DIAG,17,104/7-104/8,4911

PROG 17
4911 Date : 11:10:88 05:54:54 LC : 0 LI : -1
Lat1 : 54.917N Lon1 : 71.301W Lat2 : 44.942N Lon2 : 19.265W
Nb mes : 010 Nb mes> -120 Db : 005 Best level : -124 Db
Pass duration : 420 s Dist track : 16°
Calcul freq : 401 649.510 Khz Altitude : 2000 m
0.10450E+4 255 0.25500E+3? 0.79600E+2

ARGOS READY
/
```

Distance from ground track during satellite pass in platform visibility

Time interval between first and last message, in seconds

Computed platform transmit frequency

Platform altitude used for location calculations

ARGOS READY
/ DIAG,17,104/7-104/8,4911

PROG 17

4911 Date : 11:10:88 05:54:54 LC : 0 LI : -1
Lat1 : 54.917N Lon1 : 71.301W Lat2 : 44.942N Lon2 : 19.265W
Nb mes : 010 Nb mes> : 120 Db : 005 Best level : -124 Db
Pass duration : 420 s Dist track : 16°
Calcul freq : 401 649.510 Khz Altitude : 2000 m
0.10450E+4 255 0.25500E+3? 0.79600E+2

ARGOS READY
/

ARGOS READY
/ DIAG,17,104/7-104/8,4911

PROG 17

4911 Date : 11:10:88 05:54:54 LC : 0 LI : -1
Lat1 : 54.917N Lon1 : 71.301W Lat2 : 44.942N Lon2 : 19.265W
Nb mes : 010 Nb mes> : 120 Db : 005 Best level : -124 Db
Pass duration : 420 s Dist track : 16°
Calcul freq : 401 649.510 Khz Altitude : 2000 m
0.10450E+4 255 0.25500E+3? 0.79600E+2

ARGOS READY
/

Physical value for sensor # 4

Physical value for sensor # 3.
Value is out of range, since it is followed by a question mark

Physical value for sensor # 1

Decimal value for sensor # 2



To request on-line information on command DIAG, enter "? ,DIAG" or "HELP,DIAG" and a Carriage Return.

To abort the current command, enter "A".

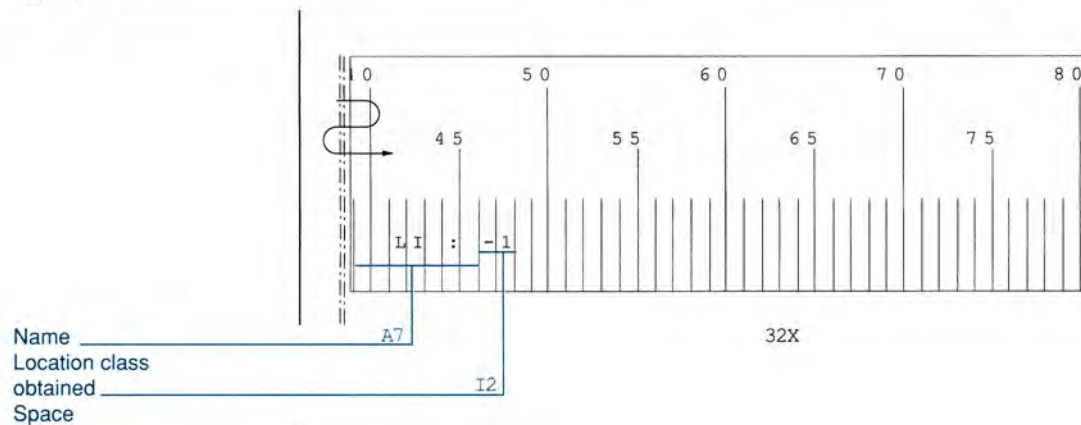
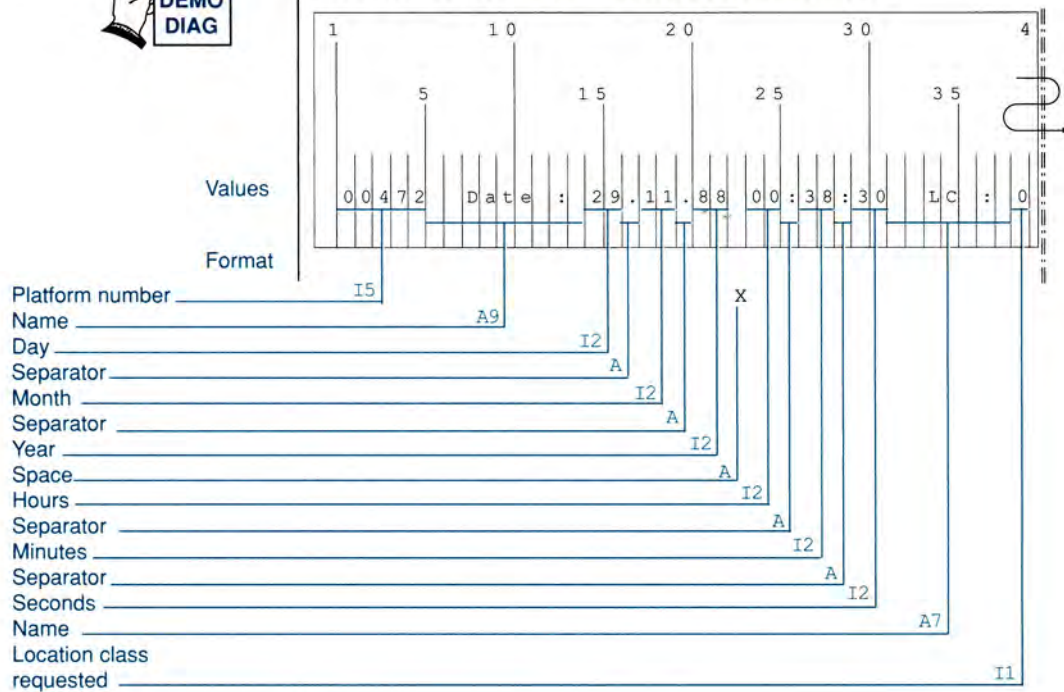
To interrupt the current command, enter "I" (uppercase). To resume, press Carriage Return.

DIAG Format :





Line 1 comprises the following information :



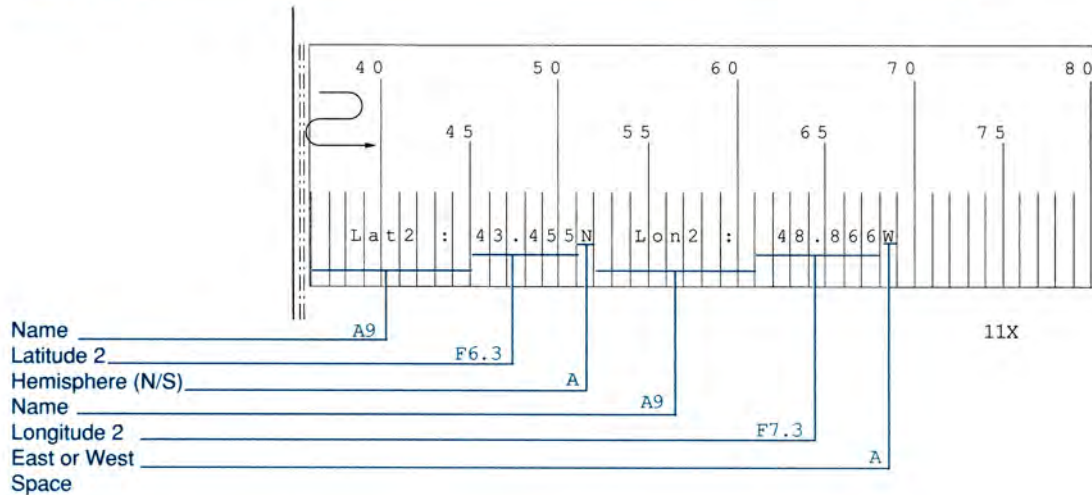
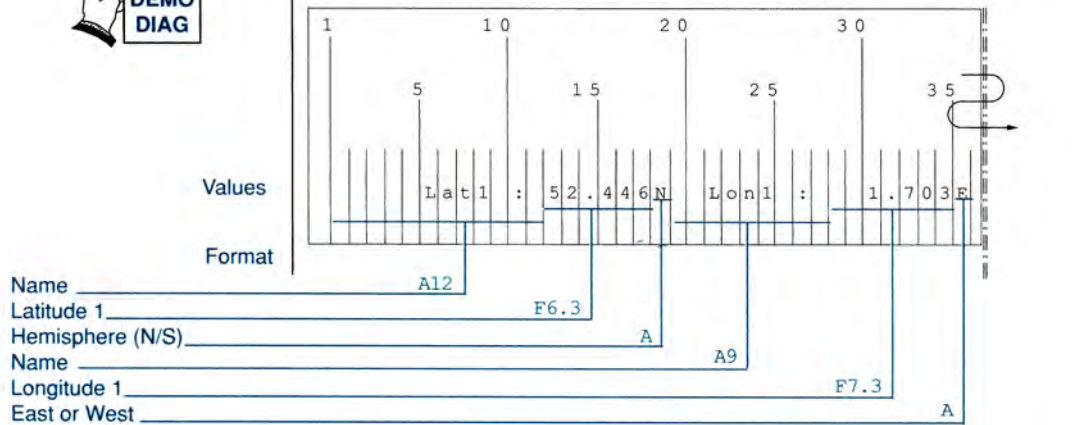
Format of complete line :

I5 A9 I2 A I2 A I2 X I2 A I2 A I2 A7 I1 A7 I2 32X

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The second line comprises the following information :

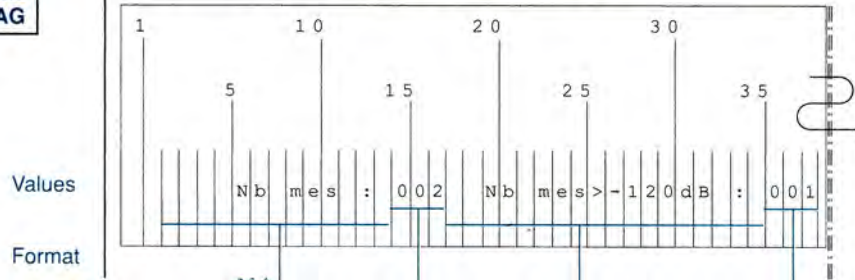


Format of complete line :

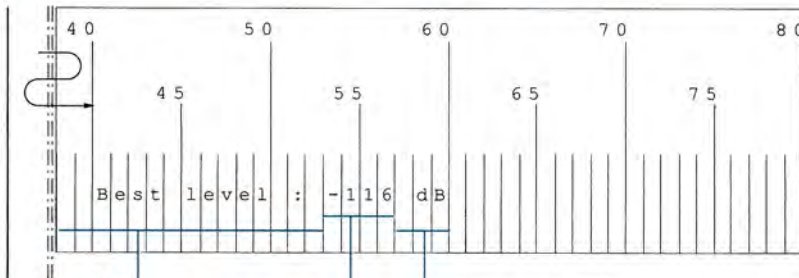
A12 F6.3 A A9 F7.3 A A9 F6.3 A A9 F7.3 A 11X



The third line comprises the following information :



Name _____
 Number of messages
 received _____
 Name _____
 Number of messages
 received with signal strength
 > -120 dB



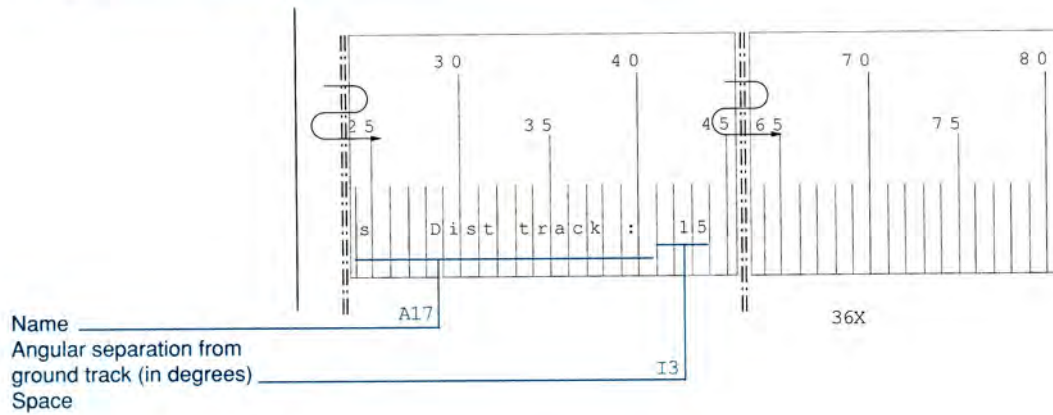
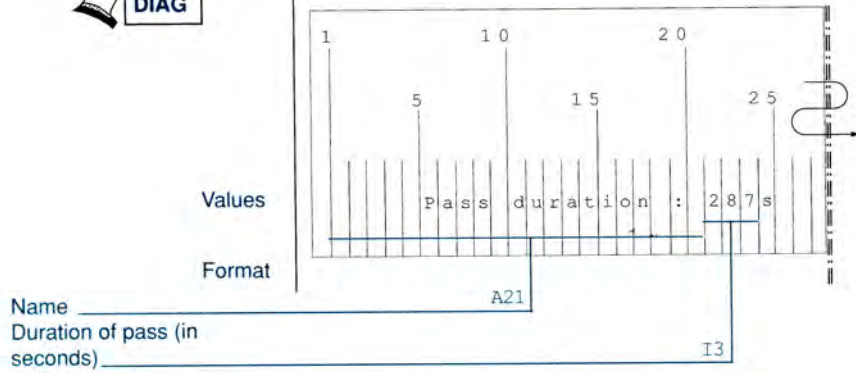
Name _____
 Best signal strength received _____
 Name _____
 Space

Format of complete line :
 A14 I3 A18 I3 A15 I4 A3 20X

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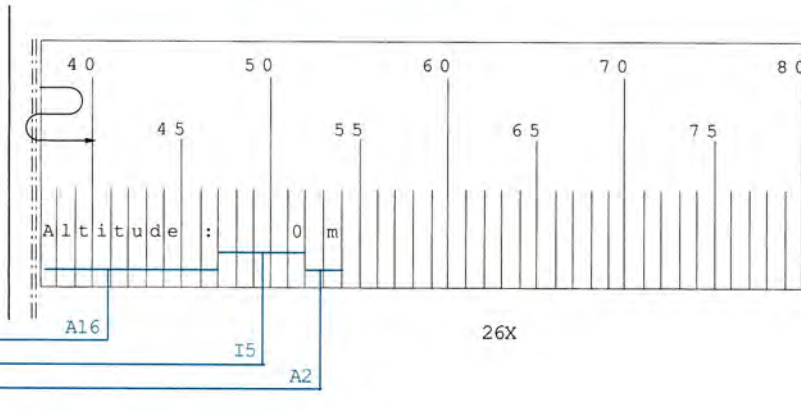
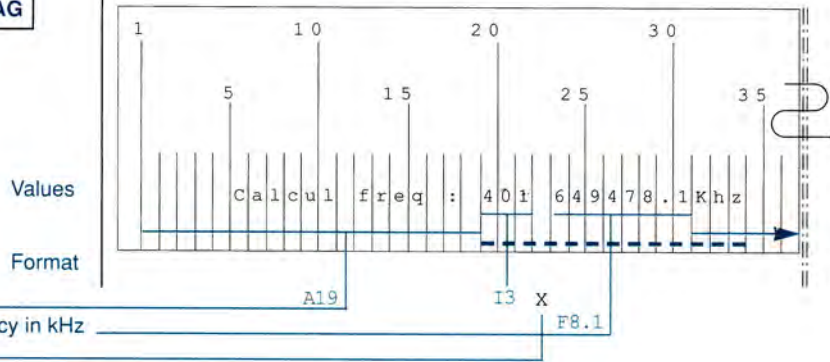
The fourth line comprises the following information :



Format of complete line :
A21 I3 A17 I3 36X



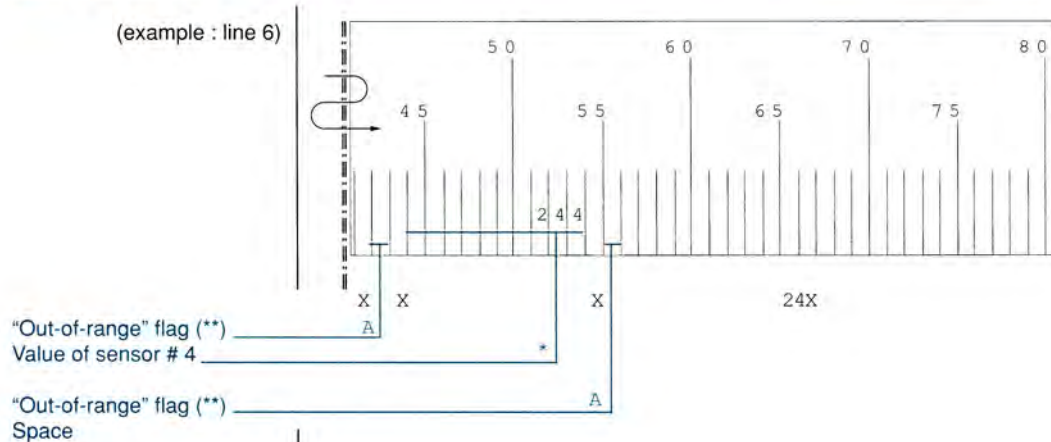
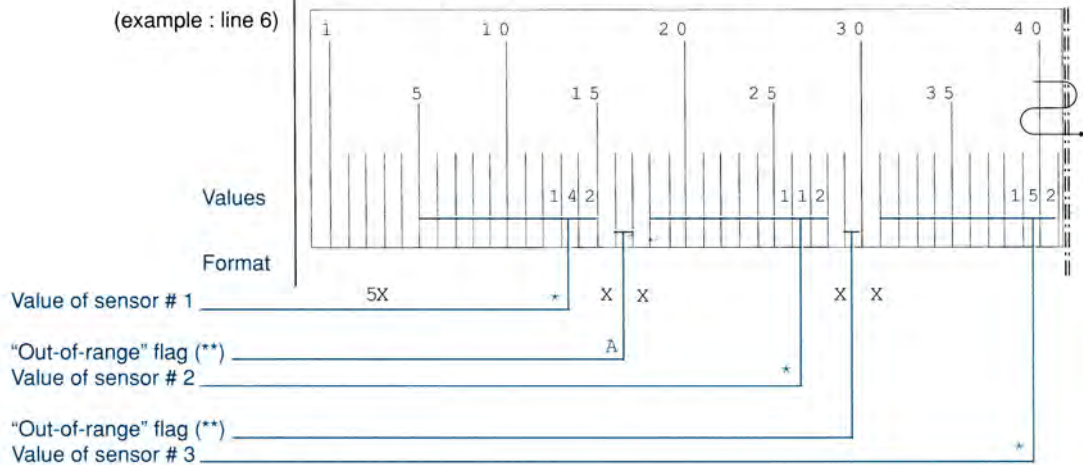
The fifth line comprises the following information :



Format of complete line :
A19 I3 X F8.1 A16 I5 A2 26X

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The sixth to thirteenth lines comprise the following information :



Format of complete line :

5X * X A X * X A X * X A X * X A 24X

* The sensor data output format depends on the processing options chosen for each sensor. For further information, refer to the description of data processing formats at the start of this chapter.

** This is in fact flagged by a question mark (?) if the value preceding it is outside the range you defined in your Technical File (for further information, refer to § 2.3.1). The area is empty ("space") if the value is within range.