

HKdata analysis software manual

This is a manual for HK Data Downlink analysis software. The currently available analysis software can analyze the following data.

- HK data downlinked by Bus transmitter (AFSK1k2 and GMSK9k6)
- HK data downlinked by FSK transmitter (GMSK9k6)

○input file for this software

The input file is a file for which CRC calculation has already been performed, and packets are outputted line by line. Specifically, the input file must be in the following format.



Fig. 1 Input file format

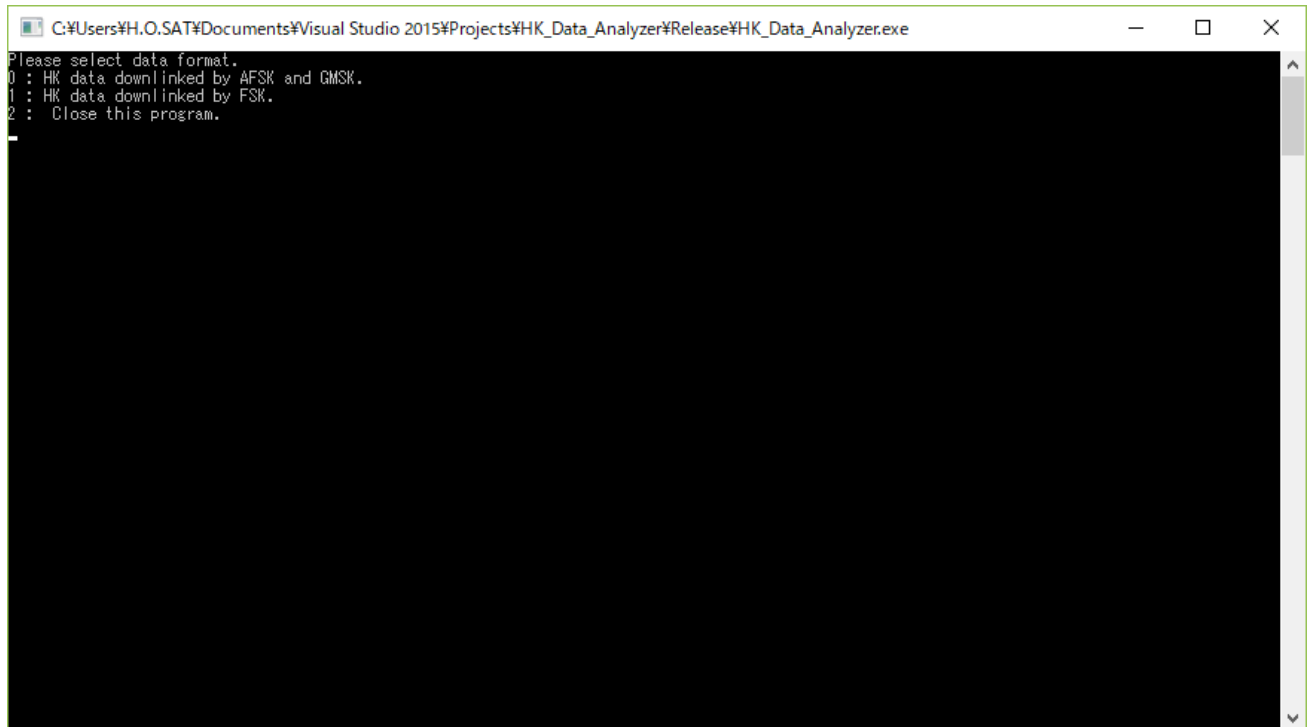
The software uses 0xA0 or 0xA1 at the beginning of the line as a trigger for the analysis, so please follow this format. If the data is not CRC-calculated or if there is extra data in the file, the analysis may not be performed correctly.

○Specify directory for output file

The directory of the output file can be specified. The directory of the output file is specified by copying the directory path where you want to save the analysis result and entering it in the program. The output file is a csv file.

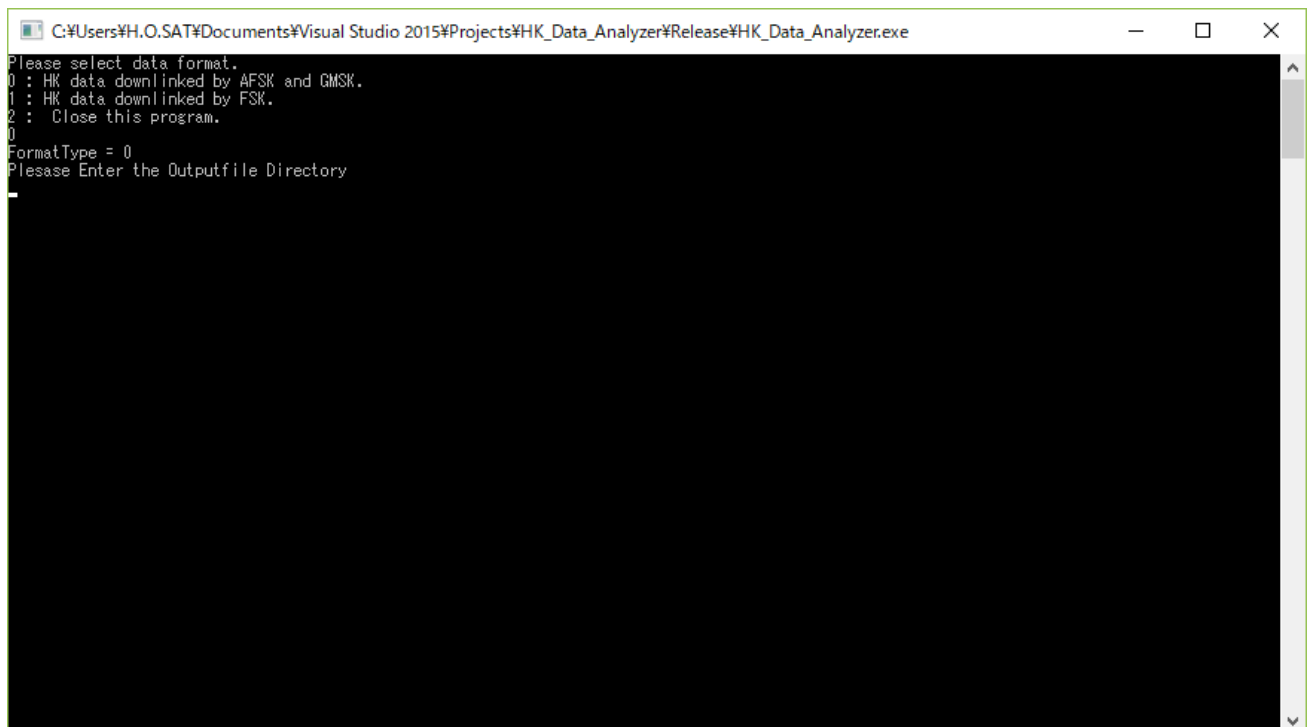
○How to use this software

When the analysis software is executed, the following screen is displayed.



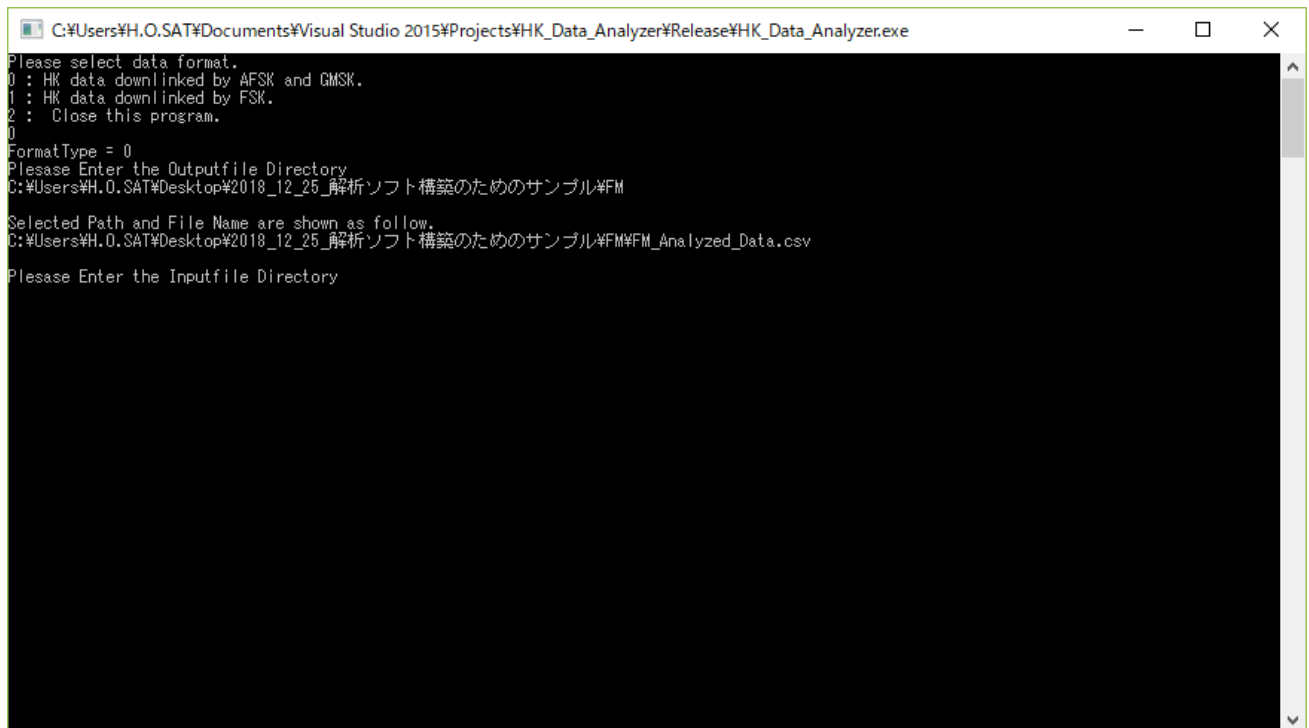
```
C:\Users\H.O.SAT\Documents\Visual Studio 2015\Projects\HK_Data_Analyzer\Release\HK_Data_Analyzer.exe
Please select data format.
0 : HK data downlinked by AFSK and GMSK.
1 : HK data downlinked by FSK.
2 : Close this program.
```

On this screen, you select the communication method for the downlink data. If you enter 0 (AFSK and GMSK), the following screen will be displayed.



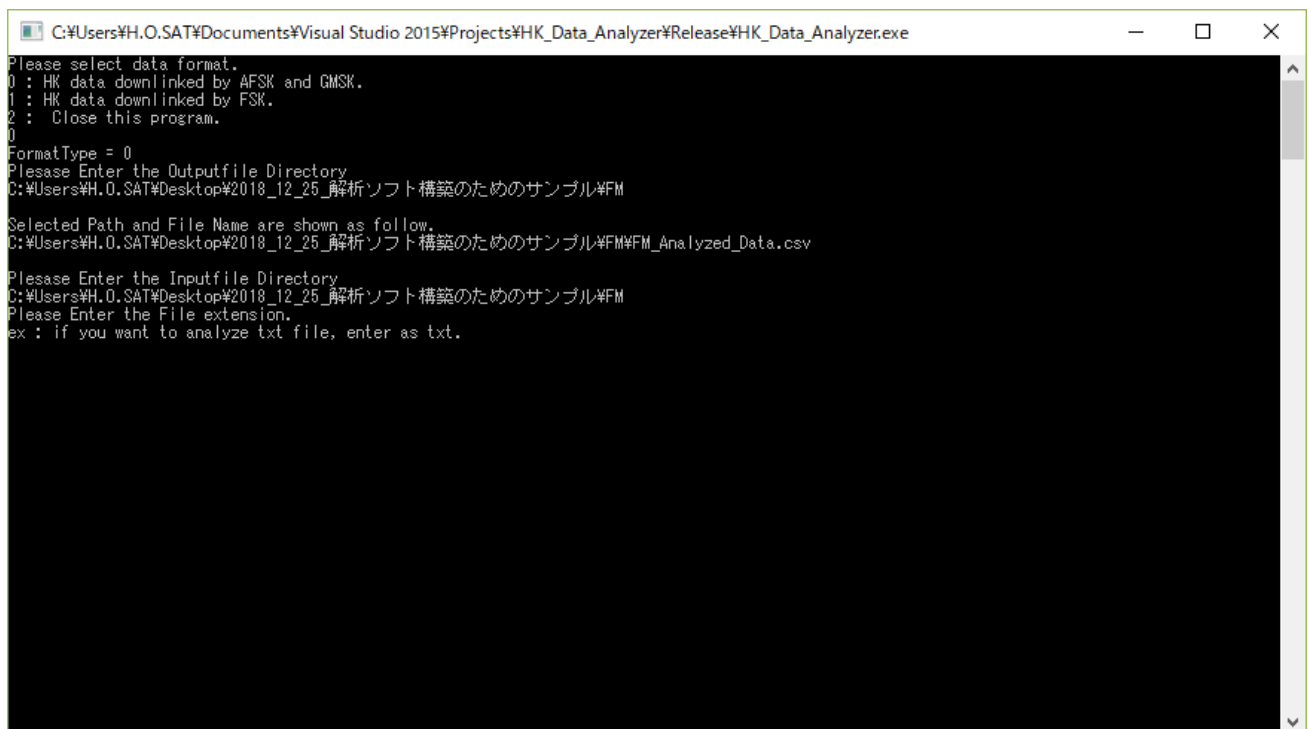
```
C:\Users\H.O.SAT\Documents\Visual Studio 2015\Projects\HK_Data_Analyzer\Release\HK_Data_Analyzer.exe
Please select data format.
0 : HK data downlinked by AFSK and GMSK.
1 : HK data downlinked by FSK.
2 : Close this program.
0
FormatType = 0
Please Enter the Outputfile Directory
```

Specify the directory of the output file on this screen. When the directory is specified, the following screen is output.



```
C:\Users\H.O.SAT\Documents\Visual Studio 2015\Projects\HK_Data_Analyzer\Release\HK_Data_Analyzer.exe
Please select data format.
0 : HK data downlinked by AFSK and GMSK.
1 : HK data downlinked by FSK.
2 : Close this program.
0
FormatType = 0
Please Enter the Outputfile Directory
C:\Users\H.O.SAT\Desktop\2018_12_25_解析ソフト構築のためのサンプル\FM
Selected Path and File Name are shown as follow.
C:\Users\H.O.SAT\Desktop\2018_12_25_解析ソフト構築のためのサンプル\FM\FM_Analyzed_Data.csv
Please Enter the Inputfile Directory
```

On this screen, specify the directory where the input file is saved to search for the input file. When the directory is specified, the following screen is displayed.



```
C:\Users\H.O.SAT\Documents\Visual Studio 2015\Projects\HK_Data_Analyzer\Release\HK_Data_Analyzer.exe
Please select data format.
0 : HK data downlinked by AFSK and GMSK.
1 : HK data downlinked by FSK.
2 : Close this program.
0
FormatType = 0
Please Enter the Outputfile Directory
C:\Users\H.O.SAT\Desktop\2018_12_25_解析ソフト構築のためのサンプル\FM
Selected Path and File Name are shown as follow.
C:\Users\H.O.SAT\Desktop\2018_12_25_解析ソフト構築のためのサンプル\FM\FM_Analyzed_Data.csv
Please Enter the Inputfile Directory
C:\Users\H.O.SAT\Desktop\2018_12_25_解析ソフト構築のためのサンプル\FM
Please Enter the File extension.
ex : if you want to analyze txt file, enter as txt.
```

Here, specify the extension of the search target file. When the file extension is specified, the following screen is output.

```
C:\Users\H.O.SAT\Documents\Visual Studio 2015\Projects\HK_Data_Analyzer\Release\HK_Data_Analyzer.exe
Please select data format.
0 : HK data downlinked by AFSK and GMSK.
1 : HK data downlinked by FSK.
2 : Close this program.
0
FormatType = 0
Plesase Enter the Outputfile Directory
C:\Users\H.O.SAT\Desktop\2018_12_25_解析ソフト構築のためのサンプル\FM
Selected Path and File Name are shown as follow.
C:\Users\H.O.SAT\Desktop\2018_12_25_解析ソフト構築のためのサンプル\FM\FM_Analyzed_Data.csv
Plesase Enter the Inputfile Directory
C:\Users\H.O.SAT\Desktop\2018_12_25_解析ソフト構築のためのサンプル\FM
Please Enter the File extension.
ex : if you want to analyze txt file, enter as txt.
hex
FindFile are shown as follow.
C:\Users\H.O.SAT\Desktop\2018_12_25_解析ソフト構築のためのサンプル\FM\*.hex
Plesase Enter the DataBlockNumber
```

This screen prompts you to enter a Data Block Number. Data Block Number is a parameter required for analysis. It shows how many HK data that can be analyzed for one packet. This value is basically 1, but it may be changed each operation. We will announce them in operational reports and twitter, so please check back as needed.

```
C:\Users\H.O.SAT\Documents\Visual Studio 2015\Projects\HK_Data_Analyzer\Release\HK_Data_Analyzer.exe
Please select data format.
0 : HK data downlinked by AFSK and GMSK.
1 : HK data downlinked by FSK.
2 : Close this program.
0
FormatType = 0
Plesase Enter the Outputfile Directory
C:\Users\H.O.SAT\Desktop\2018_12_25_解析ソフト構築のためのサンプル\FM
Selected Path and File Name are shown as follow.
C:\Users\H.O.SAT\Desktop\2018_12_25_解析ソフト構築のためのサンプル\FM\FM_Analyzed_Data.csv
Plesase Enter the Inputfile Directory
C:\Users\H.O.SAT\Desktop\2018_12_25_解析ソフト構築のためのサンプル\FM
Please Enter the File extension.
ex : if you want to analyze txt file, enter as txt.
hex
FindFile are shown as follow.
C:\Users\H.O.SAT\Desktop\2018_12_25_解析ソフト構築のためのサンプル\FM\*.hex
Plesase Enter the DataBlockNumber
1
```

The analysis starts when the data block number is entered. The following screen is output when the analysis is finished.

```
C:\Users\H.O.SAT\Documents\Visual Studio 2015\Projects\HK_Data_Analyzer\Release\HK_Data_Analyzer.exe
B 80 A 88 A 6D 40 C9 94 D7 4C CC FF 32 FF 8D 0 5F 8 98 7 A7 9 91 7 DE
Paket:213 A1 0 1 1 5 0 0 89 8A D0 1 1 1 1 1 C 5A 1 E2 0 3 0 5 0 3 0 3 0 5 0 2 A DC A 93 A 27 A 53 A 49 9 F8 A C2 A D2 B C8 D B6 C 10 B 5D C C
B DC A 95 A 7E 62 C8 69 D5 27 CB FF 4E FF 4D 0 5A 7 DB 8 DD 8 5D 7 DE
Paket:214 A1 0 1 1 5 0 0 8A 52 D0 1 1 1 1 1 C 54 1 EB 0 3 0 7 0 C 0 3 0 6 0 4 A E8 A 9A A 30 A 5B A 57 9 FF A D4 A DF B E3 D B4 C 18 B 73 C 6D
B C8 A A7 A 8A 9E C7 29 D4 51 CA FF 85 FF 33 0 38 5 32 9 AF 8 E2 7 DF
Paket:215 A1 0 1 1 5 0 0 8B 1A D0 1 1 1 1 1 C 8 1 A4 0 A 0 11 1 2C B 84 9 69 0 D A FF A D7 A 5B A 69 A 7A A 7D A FE A F1 C 0 D E6 B BF C 43 C
88 B E9 A B7 A BB E6 C8 1B D4 50 C9 FF DC FF 24 0 53 5 9F 7 CD A 27 7 E3
Paket:216 A1 0 1 1 5 0 0 8B E2 D0 1 1 1 1 1 C D4 1 9B 0 8 4 2B 0 1B B 3B 7 FA 0 11 A F1 A CD A 57 A 60 A 88 A 86 B A A FC B D5 D 9A A 4C C 46
C 7F B 3F A C A DC 1F C7 16 D3 48 C9 0 30 FF 1C 0 29 7 DC 7 3C A 97 7 E0
Paket:217 A1 0 1 1 5 0 0 8C AA D0 1 1 1 1 1 C C7 1 CC 0 B 8 12 0 1A B 87 6 14 0 A A D0 A A0 A 2D A 47 A 6D A 13 B 0 B 3 B BC C CB 9 74 B 88 C
80 A 43 A BE A A4 39 C9 19 D2 4F C9 0 51 FF 25 0 4F 7 74 9 36 9 C3 7 E1
Paket:218 A1 0 1 1 5 0 0 8D 72 D0 1 1 1 1 1 C CC 1 D1 0 19 B 52 0 16 A 13 5 34 0 1D A B0 A A0 A 2A A 40 A 71 A F B 3 B 3 B B3 B AE 9 2F B 74 C
57 9 F0 A BF A 9C 6B CC 3C D2 54 C9 0 70 FF 48 0 58 6 2E A 8E 8 93 7 E0
Paket:219 A1 0 1 1 5 0 0 8E 3A D0 1 1 1 1 1 C D8 1 BA 0 23 A EC 0 14 A 41 2 B7 0 B A 9A A C2 A 41 A 3F A 85 A 7E B 10 B 2 B B2 A B9 9 73 B ED
C 4A A C A B7 A AE 82 CE 5C D2 4E C9 0 86 FF 68 0 48 5 69 9 F3 8 49 7 E0
Paket:220 A1 0 1 1 5 0 0 8F 2 D0 1 1 1 1 1 C DF 1 BD 0 A 6 42 0 87 C C 8 DF 0 15 A 7F A B9 A 31 A 31 A 79 A 7F B 7 A F7 B AA 9 BA 9 E9 B CE C
22 9 EB A AA A 9D 87 D1 85 D3 63 CA 0 99 FF 92 0 69 5 65 8 D0 9 2B 7 E2
Paket:221 A1 0 1 1 5 0 0 8F CA D0 1 1 1 1 1 C BB 1 BC 0 27 0 20 0 BB 4 8B F 66 1 A A 57 A 88 A 11 A 19 A 52 9 F2 A F0 A EF B 8B 8 D0 9 EF A D3
B E0 9 36 A A0 A 6F 92 D3 C5 D3 75 CB 0 8C FF B9 0 7F 6 5C 8 93 A F1 7 DE
Paket:222 A1 0 1 1 5 0 0 90 92 90 1 1 1 1 1 D 2E 0 A4 1 31 0 A 0 7B 0 9 B 1C A C7 A 5C A AA A 17 A 26 A 56 A 6C A F0 A EA B 76 8 AE A 30 B 12
B C3 9 FE A 90 A 7F 7B D5 2 D4 9D CB 0 75 FF EF 0 8E 8 1C A 4F 7 EE 7 E1
Paket:223 A1 0 1 1 5 0 0 91 5A 90 1 1 1 1 1 D 26 0 B3 0 FF 4 E7 0 14 0 99 0 98 D D0 A 55 A A0 A 9 A 1F A 40 A 69 A E1 A E2 B 43 8 BF A 58 A CA
B 8B 9 BE A 85 A 75 B8 D6 3B D4 95 CC 0 53 0 46 0 38 8 E2 8 94 7 74 7 E0
Paket:224 A1 0 1 1 5 0 0 92 22 90 1 1 1 1 1 D 2A 0 CB 0 54 C 6C 0 9B 1 C7 2 B4 6 A7 A 34 A 6D 9 E2 A 5 A 12 9 E2 A C2 A D5 A EA 8 F5 A 49 9 D7
B 59 8 E0 A 78 A 4C F D8 62 D5 90 CD 0 10 0 6D 0 97 7 85 7 D8 7 E7 7 E2
Paket:225 A1 0 1 1 5 0 0 92 EA 90 1 1 1 1 1 D 33 0 99 0 A7 6 A8 1 E3 1 27 B E7 0 E A 47 A 81 9 E0 A 2 A 11 A 5F A BB A C4 A A2 9 4A A C8 9 FB
B 36 9 CE A 69 A 5D CD D8 7A D5 86 CE FF D2 0 70 0 7A 7 D6 9 FB 8 44 7 E3
Paket:226 A1 0 1 1 5 0 0 94 7A 90 1 1 1 1 1 D 28 0 99 1 41 1 1 F 26 0 1E 0 50 1 5B A 35 A 63 9 B6 9 DC 9 E3 A 4F A 8E A 9D A 5B 9 A7 A BA 9 79
A F8 9 B0 A 4F A 47 62 DA 69 D6 5E D2 FF 68 0 60 0 6A 9 C8 8 55 8 CE 7 F0
Paket:227 A1 0 1 1 5 0 0 96 D2 90 1 1 1 1 1 D 3C 0 9D 1 49 1 B1 0 BC 1 CA C 9B 4 26 A 21 A 2B 9 76 9 97 9 AA A 35 A 49 A 5F 9 C6 A E3 9 FE 9 A
8 A AD 9 98 A 29 A DB 3F DD B9 D9 64 D5 FF C FF DC 0 6F 8 12 8 AE 9 3D 7 E4

Please select data format.
0 : HK data downlinked by AFSK and GMSK.
1 : HK data downlinked by FSK.
2 : Close this program.
```

If this screen is output, the analysis is performed normally and an output file is generated in the specified directory.

** There is an exe in the "Release" folder under the file that is output when the zip file is decompressed.
The source code is in "HK_Data_Analyzer" folder.