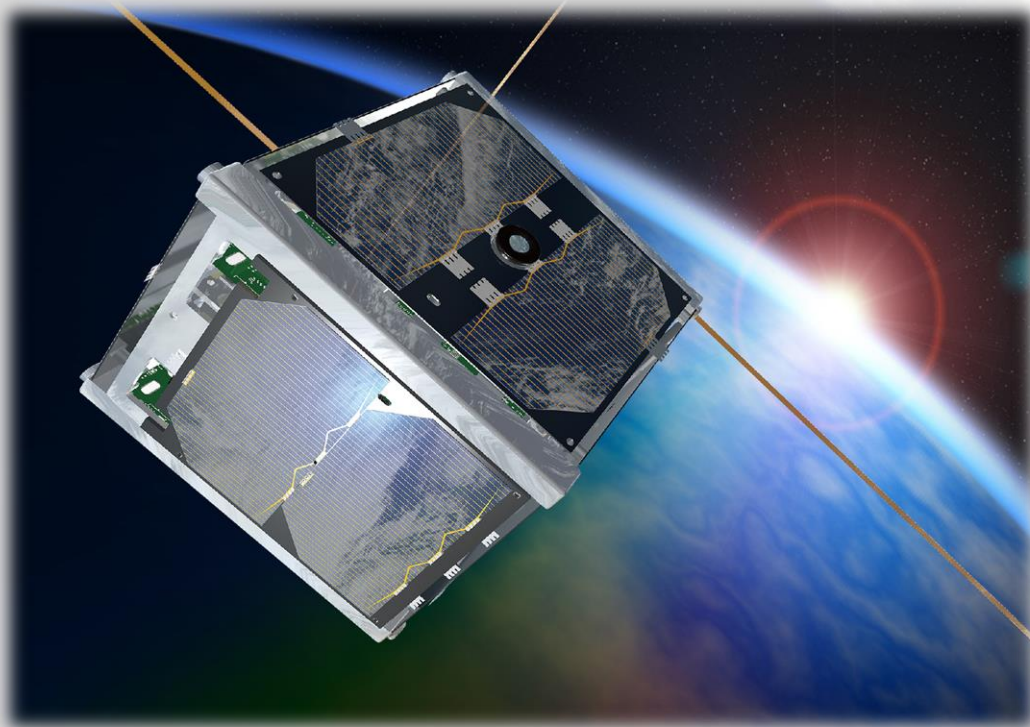


# FSK 19k2 demodulation method of NEXUS(FO-99)

JS1YAW



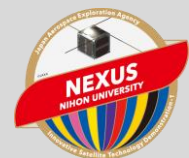
## NEXUS development team

### **Nihon univ.**

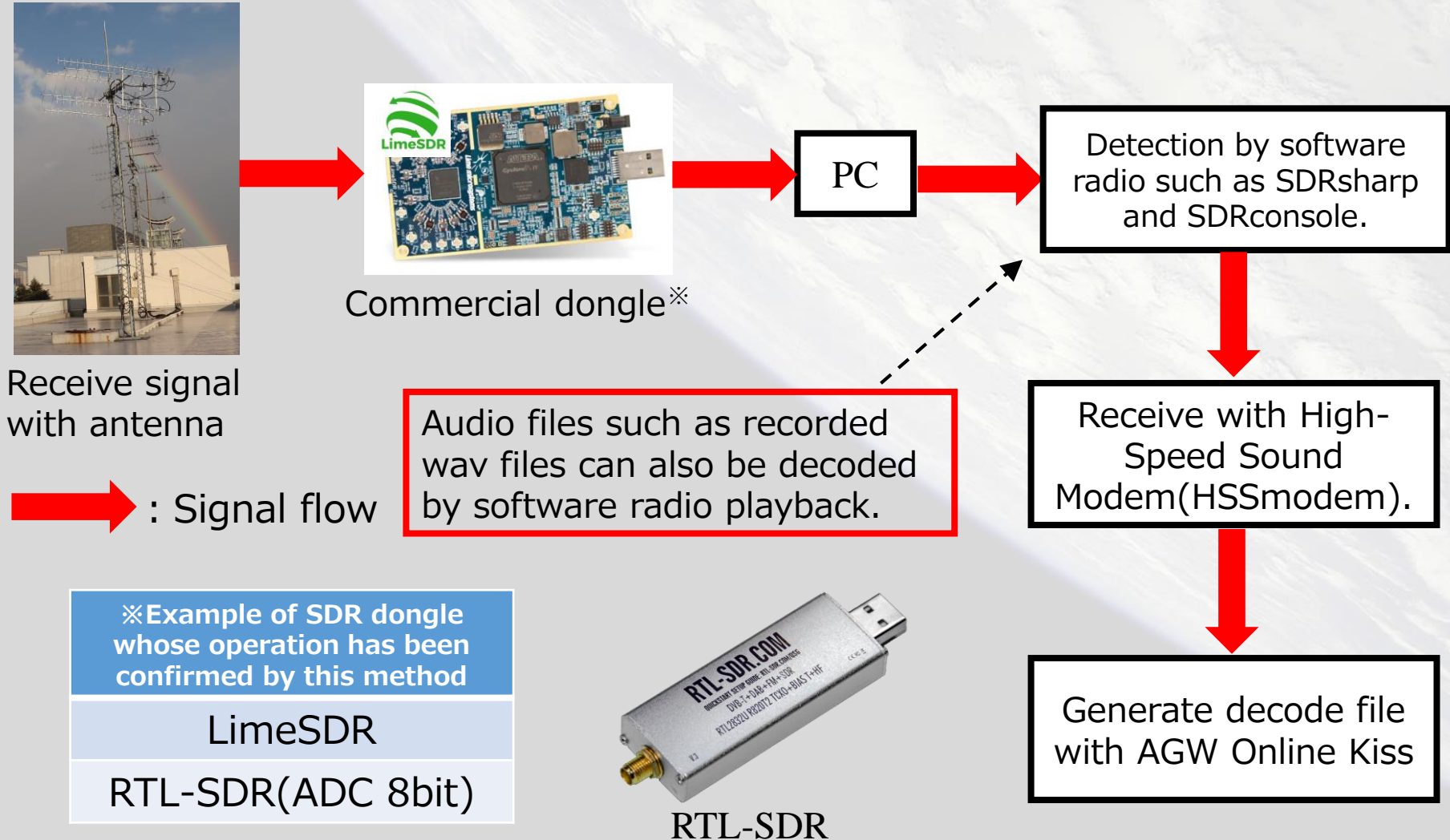
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# FSK19.2kbps demodulation procedure



# Preparation for demodulation

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1. Check the stereo mixer
2. Install SDR console
3. Play the wav file
4. Install HSSmodem
5. Install AGW Online Kiss
6. Install the ocx file
7. Set the PC language to English version

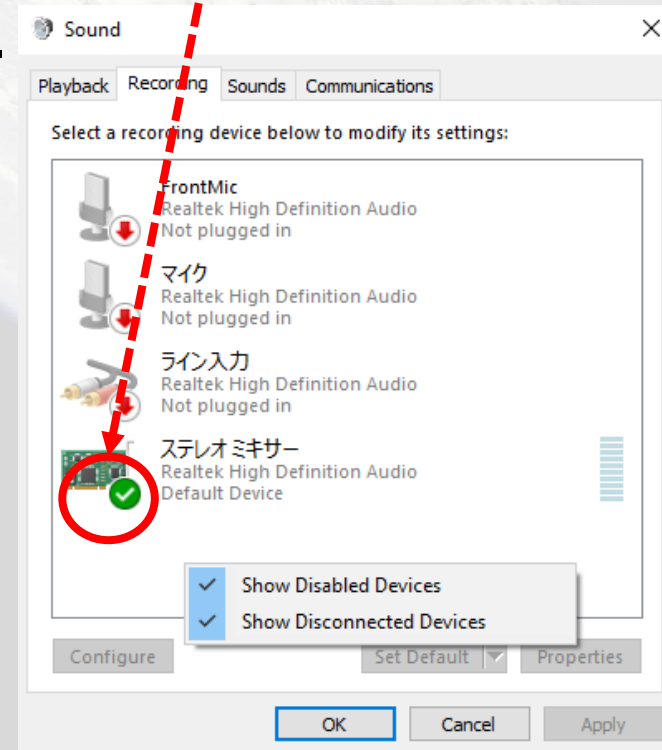
# 1. Check the stereo mixer



# 1. Check the stereo mixer

Open the sound settings and make sure **the stereo mixer is enabled**.

- When the sound mixer is not enabled.  
→ Right-click "Stereo Mixer" to enable it.
- When the stereo mixer is not displayed on the "Recording" tab.  
→ Right-click on an empty area and check "Show invalid devices".



# 1. Check the stereo mixer

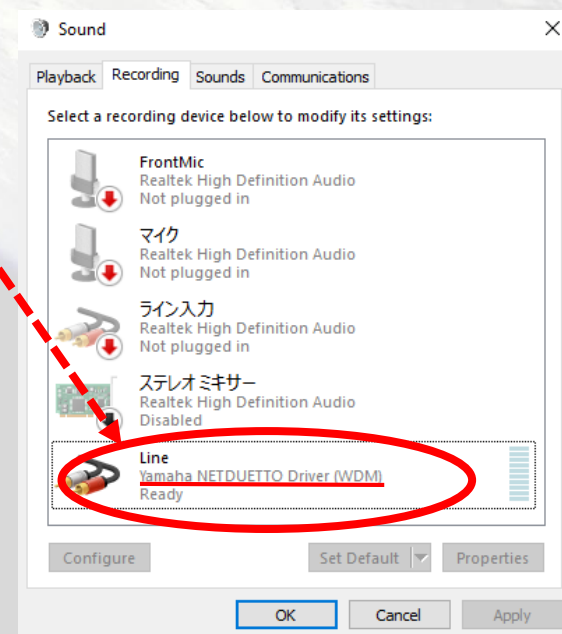
If the stereo mixer still does not appear. . .  
Your PC does not have a stereo mixer.

**Alternative:** Introduce a software stereo mixer.

Download "**YAMAHA NETDUETTO**" from the following URL and install it as a valid device.

URL: YAMAHA NETDUETTO

<https://www.netduetto.net/download/>



## 2. Install SDR console

## 2. Install SDR console

Download and install "**SDR console**" from the following URL.

URL : SDR console

<https://www.sdr-radio.com/Software/??Downloads>

At startup, you need to define the dongle. Register according to the dongle to be used. If you only play the wav file, you can ignore it.

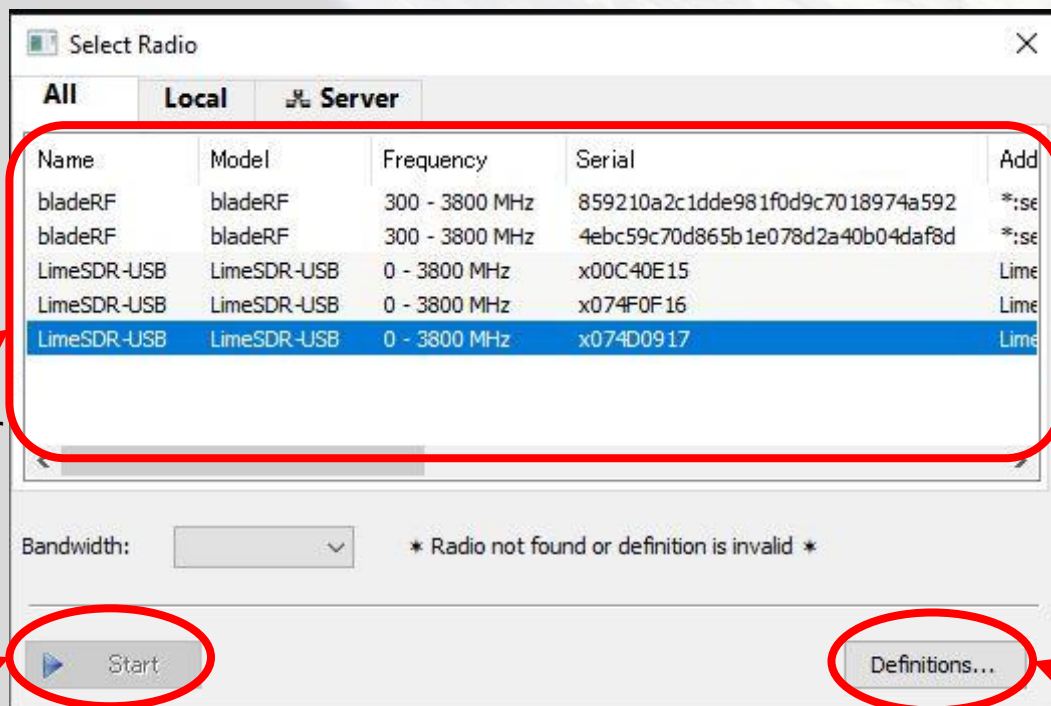


→If you only play wav files, you can ignore this window.



## 2. Install SDR console

When a dongle that can be used with "SDRconsole" is connected to the PC, the following screen is displayed, and the device can be registered and the received signal can be played.



List of registered or available devices.

Playback is possible if the selected device is connected to the PC.

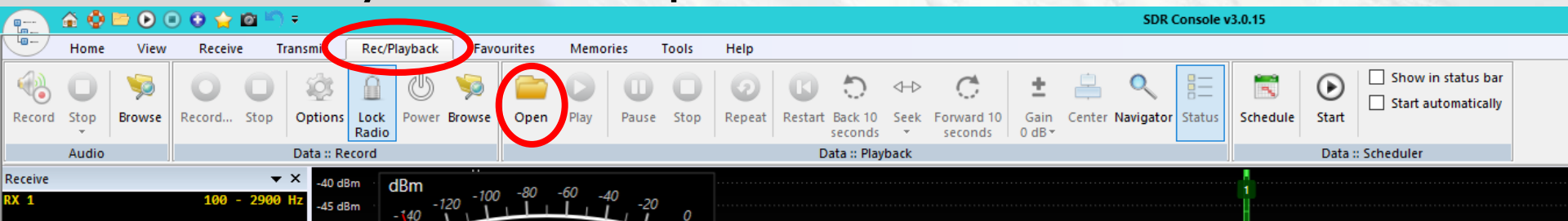
To newly register the selected device, select "Definitions".

# 3. Play the wav file

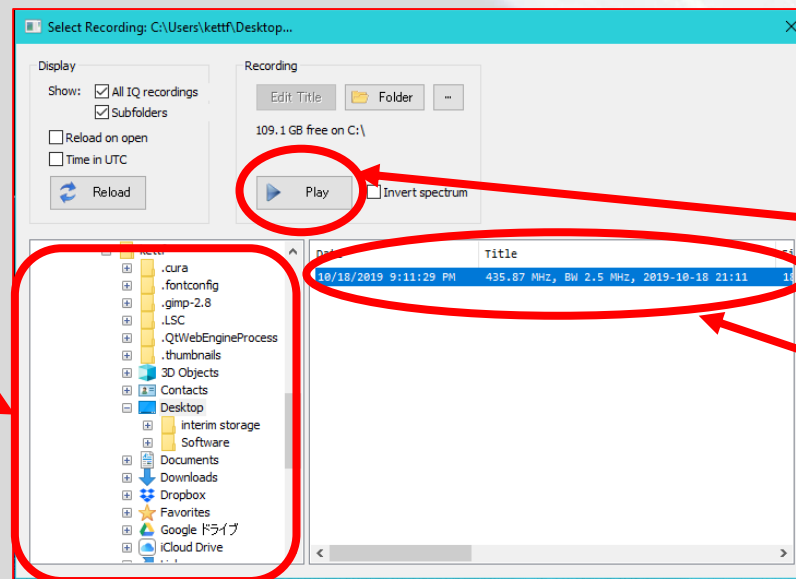
# 3. Play the wav file

Start “**SDR console**”.

Rec/Playback → open



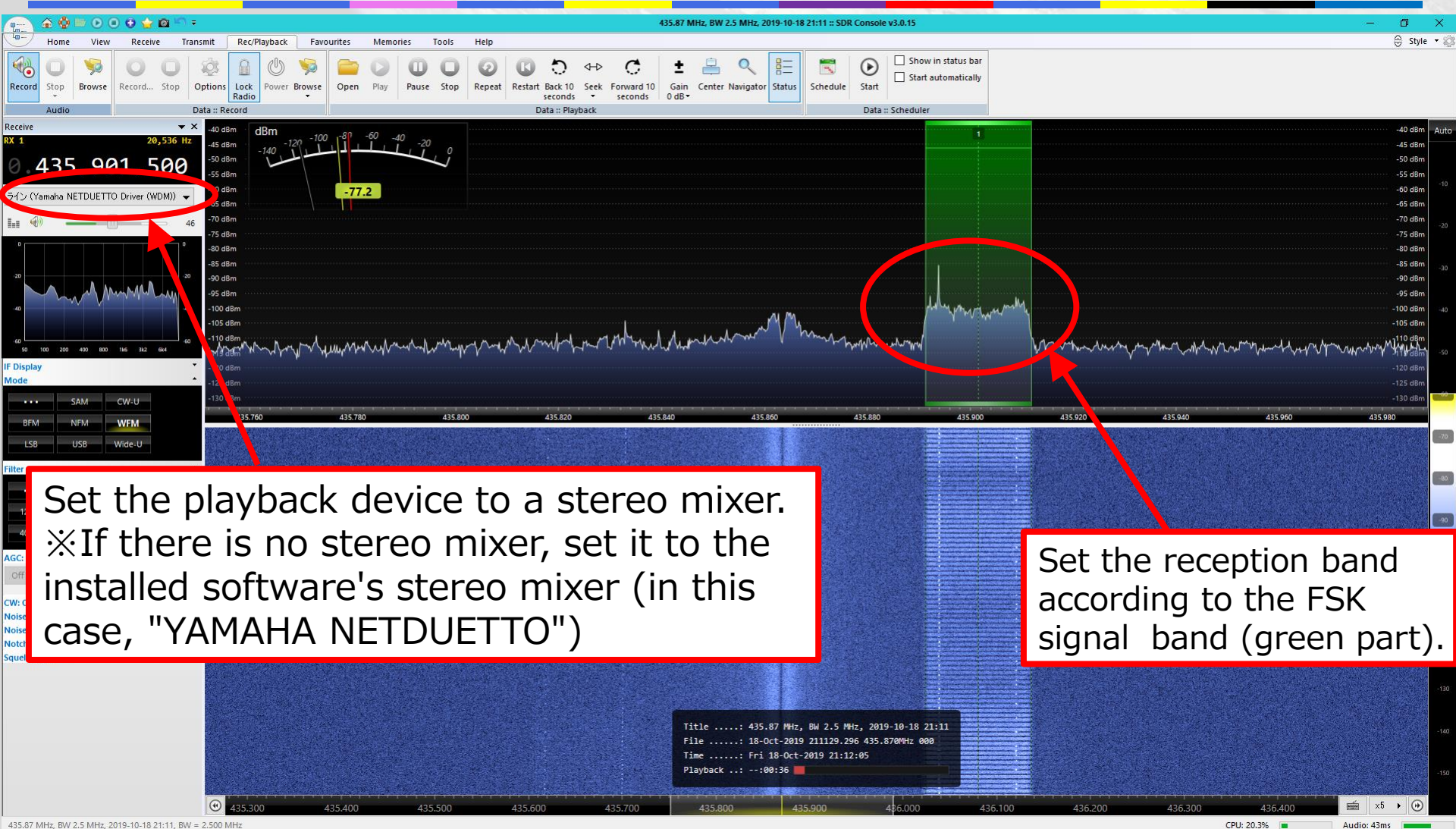
Select the directory containing the wav file you want to play.



A list of files that can be played is displayed. Select the file you want to play and click “Play”.

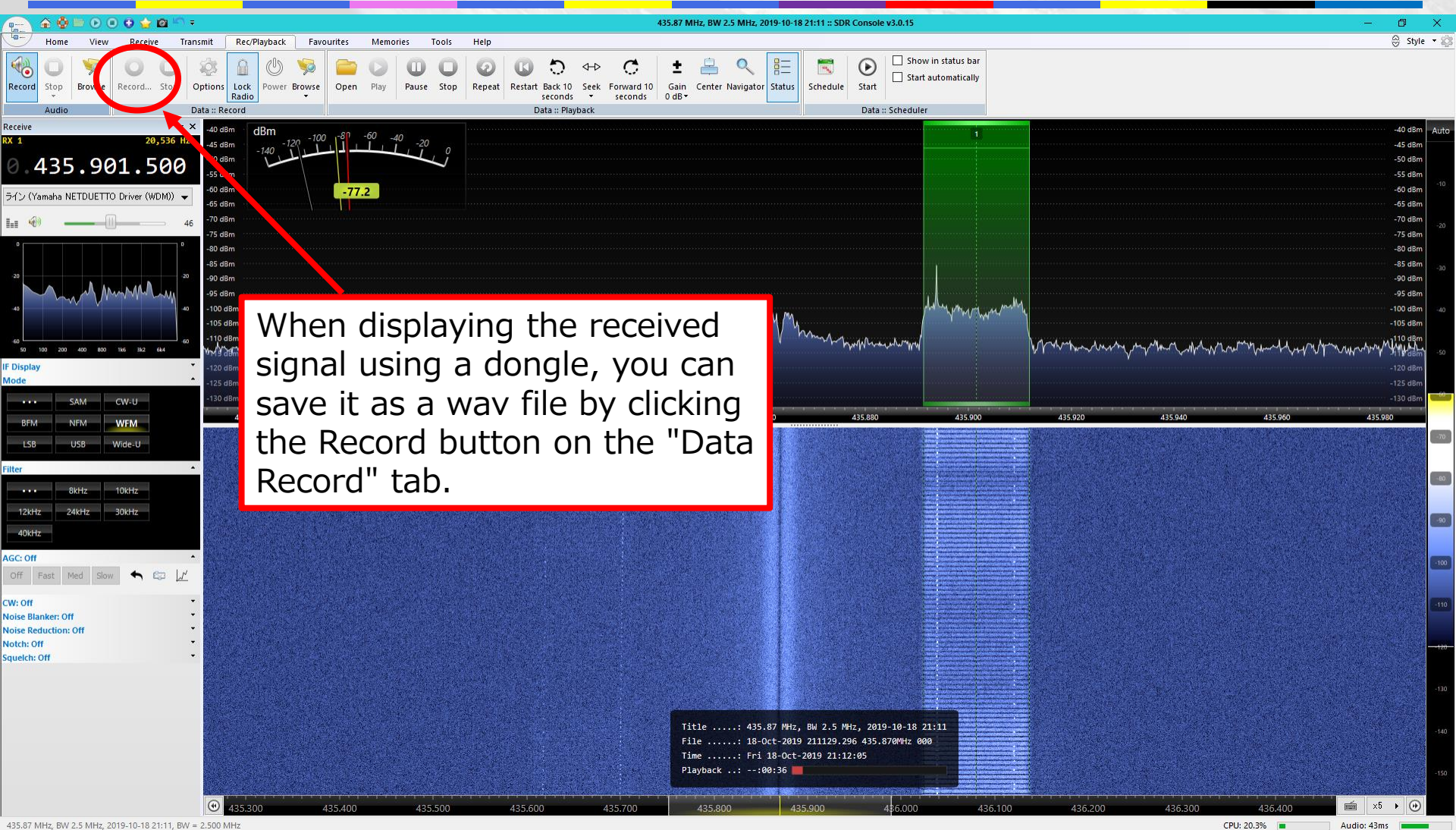


# 3. Play the wav file





# 3. Play the wav file



When displaying the received signal using a dongle, you can save it as a wav file by clicking the Record button on the "Data Record" tab.



# 4. Install HSSmodem

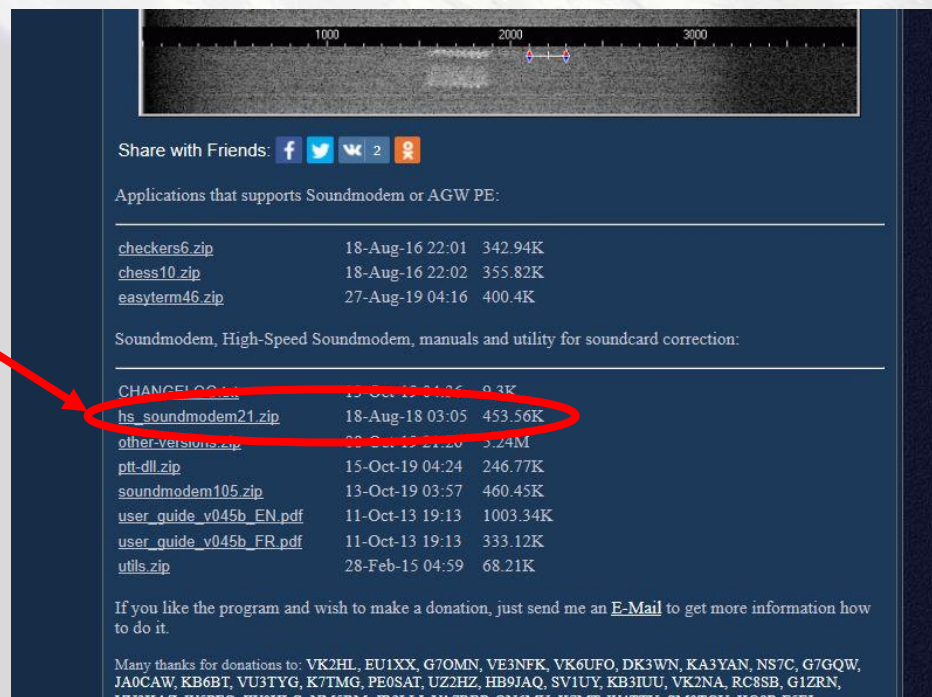
# 4. Install HSSmodem





Install “**HSSmodem**” from the following URL.

URL : HSSmodem

<http://uz7.ho.ua/packetradio.htm>

Download and unzip  
“hs\_soundmodem21.zip”



Share with Friends:    2 

Applications that supports Soundmodem or AGW PE:

<a href="#">checkers6.zip</a>	18-Aug-16 22:01	342.94K
<a href="#">chess10.zip</a>	18-Aug-16 22:02	355.82K
<a href="#">easyterm46.zip</a>	27-Aug-19 04:16	400.4K

Soundmodem, High-Speed Soundmodem, manuals and utility for soundcard correction:

<a href="#">CHANGELOG.txt</a>	19-Oct-19 04:26	0.3K
<a href="#">hs_soundmodem21.zip</a>	18-Aug-18 03:05	453.56K
<a href="#">other-versions.zip</a>	08-Oct-19 21:20	5.24M
<a href="#">ptt-dll.zip</a>	15-Oct-19 04:24	246.77K
<a href="#">soundmodem105.zip</a>	13-Oct-19 03:57	460.45K
<a href="#">user_guide_v045b_EN.pdf</a>	11-Oct-13 19:13	1003.34K
<a href="#">user_guide_v045b_FR.pdf</a>	11-Oct-13 19:13	333.12K
<a href="#">utils.zip</a>	28-Feb-15 04:59	68.21K

If you like the program and wish to make a donation, just send me an [E-Mail](#) to get more information how to do it.

Many thanks for donations to: VK2HL, EU1XX, G7OMN, VE3NEK, VK6UFO, DK3WN, KA3YAN, NS7C, G7GQW, JA0CAW, KB6BT, VU3TYG, K7TMG, PE0SAT, UZ2HZ, HB9IAQ, SV1UY, KB3IUU, VK2NA, RC8SB, G1ZRN, HBKAZ, W8PFC, W9HLE, N2GDM, W4LLI, W4TRP, ON0GL, K2LE, W4TFL, SV0TCH, K0BP, F5SL

# 4. Install HSSmodem

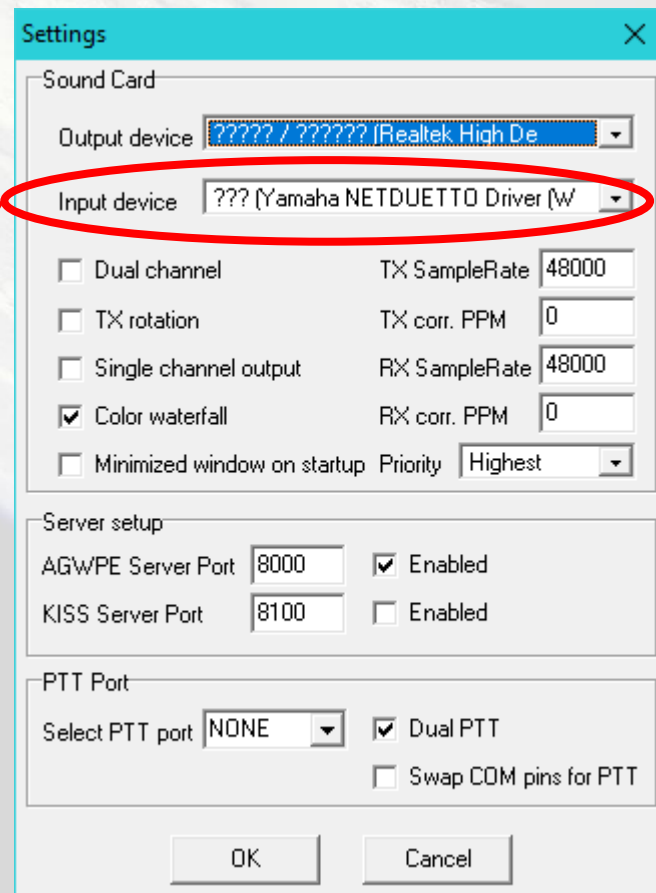
Start “**HSSmodem**”.

Setting → Devices

Set the sound card.

Set the stereo mixer to Input device.

※ If the PC language setting is not English, the characters are garbled.



# 5. Install AGW Online Kiss

# 5. Install AGW Online Kiss

Install "**AGW Online Kiss**" from the following URL

URL : agw\_online\_kiss

<https://drive.google.com/open?id=1IJxQ8OeYCbJqLH4kubYbs0BQMZQRbV44>

※"AGW Online Kiss" may not start unless Calsat32 is installed. Install Calsat32 from the following URL.

URL : Calsat32

[http://jr1huo.my.coocan.jp/jr1huo\\_calsat32/Download.htm](http://jr1huo.my.coocan.jp/jr1huo_calsat32/Download.htm)



# 6. Install the ocx file

# 6. Install the ocx file

---

"AGW Online Kiss" will not start if the ocx file is not installed, so download and unzip the ocx file from the following URL.

URL : ocx file

<https://drive.google.com/file/d/1gdjRt6NUrE13w7TfCg9OheHUC08bN2VI/view?usp=sharing>

Create "ocx" folder in C drive and move all downloaded files.

# 6. Install the ocx file

Execute the command prompt as an administrator, and execute the "ocx\_batch.bat" file in the extracted folder. Register the ocx file in the OS.

```
C:\ocx>ocx_batch  
C:\ocx>regsvr32 COMDLG32.OCX  
C:\ocx>regsvr32 MSCHRT20.OCX  
C:\ocx>regsvr32 mscomm32.ocx  
C:\ocx>regsvr32 MSINET.OCX  
C:\ocx>regsvr32 mswinsck.ocx  
C:\ocx>regsvr32 RICHTX32.OCX  
C:\ocx>regsvr32 TABCTL32.OCX
```

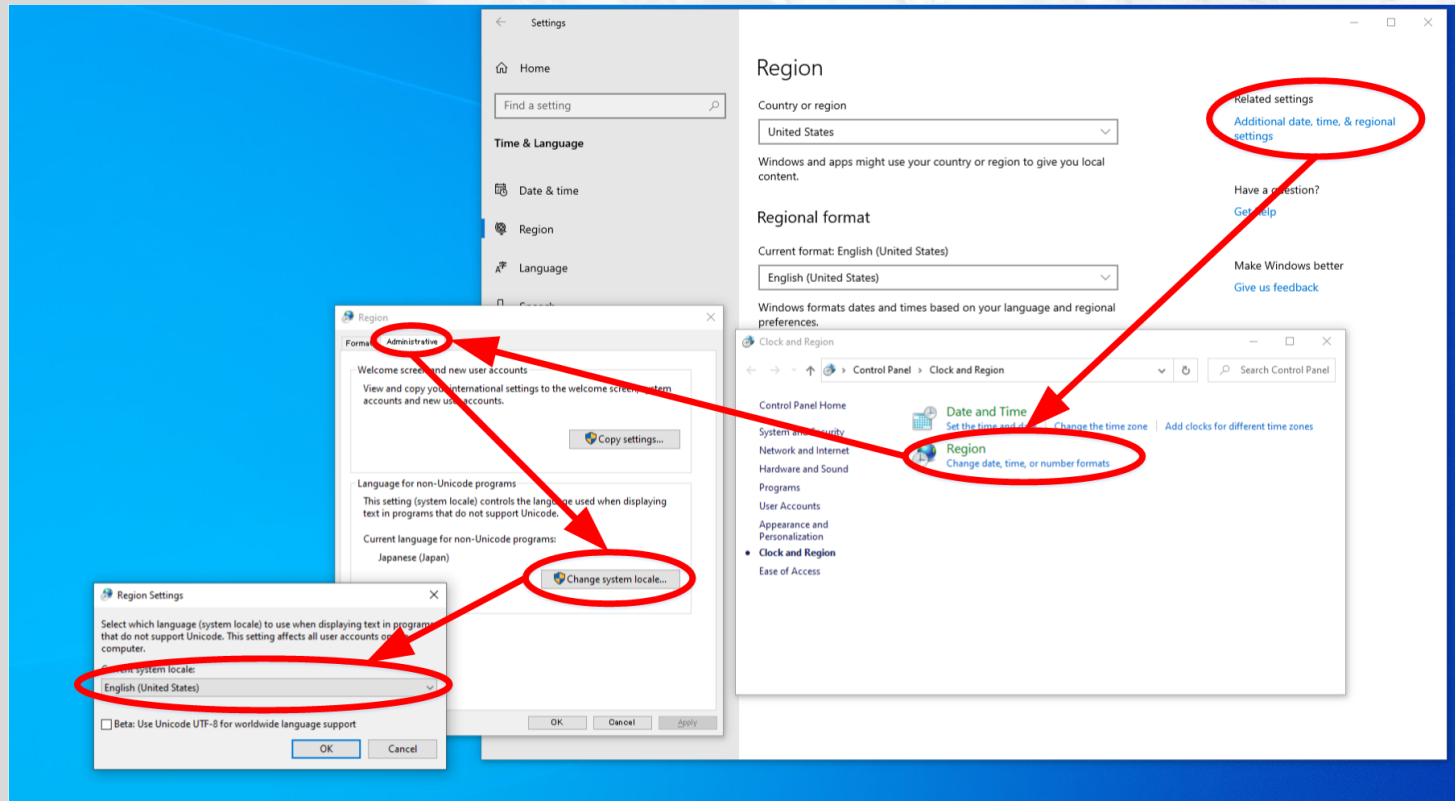
Execute the  
"ocx\_batch.bat" file.

Each ocx file is  
registered automatically.

# 7. Set the PC language to English version

# 7. Set the PC language to English version

AGW Online Kiss cannot be started unless the PC language is English. From the Windows settings, set the region → current region to “English”, change the system locale according to the following procedure, and restart the PC.



Additional settings for date, time and region → Region → Management → Change system locale → Set to "English (US)"



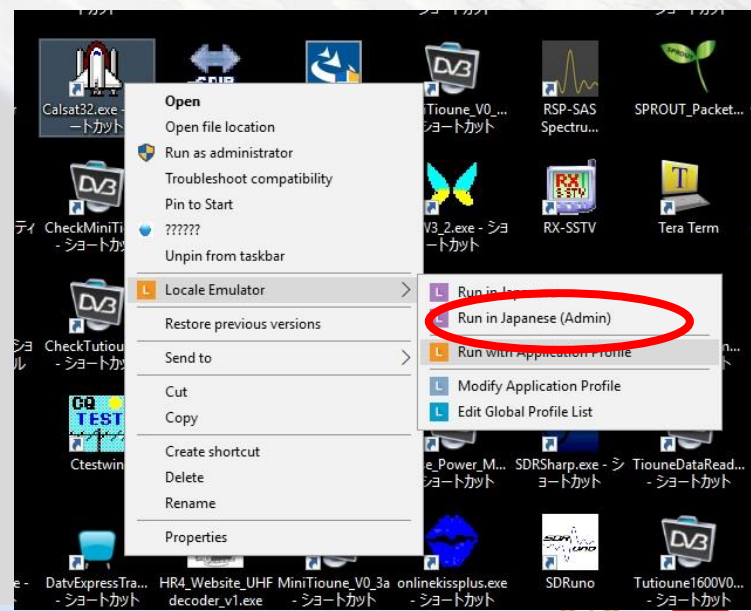
## 7. Set the PC language to English version

Since Calsat32 does not run on Windows10 64bit English version, it is necessary to install the emulator from the following URL.

URL : Locale Emulator

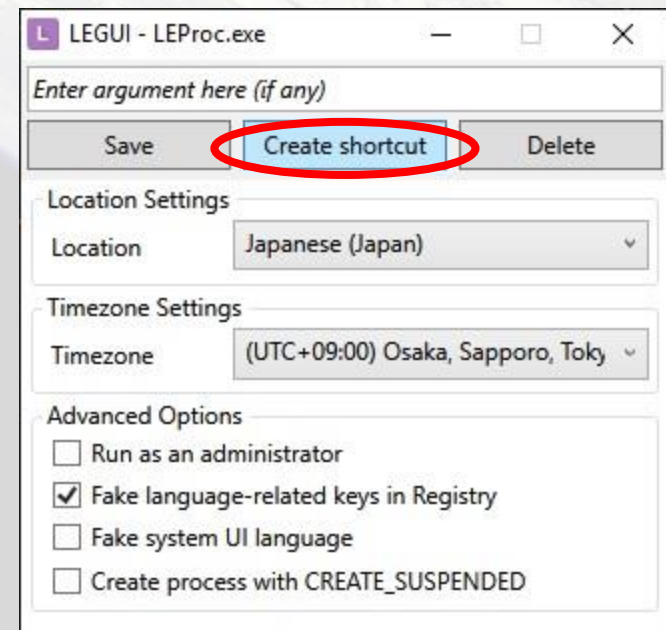
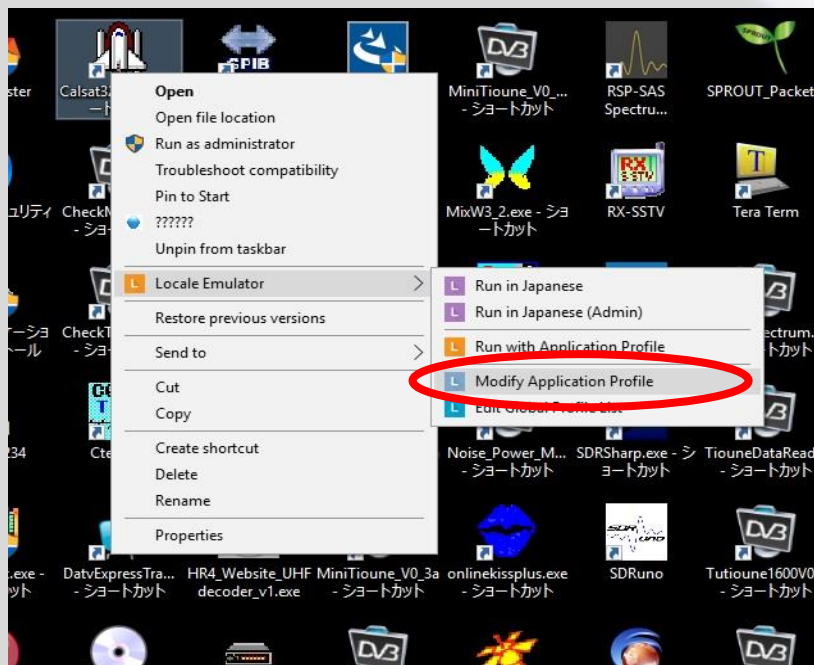
<https://github.com/xupefei/Locale-Emulator/releases>

After installing the emulator, right-click on the Calsat32 icon and start up with "Locale Emulator" → "Run with Application Profile" ("Run in Japanese" is also possible)



# 7. Set the PC language to English version

From the "Modify Application Profile", create or save a new shortcut for the profile that can be started, so that it can be started as usual the next time.



# Ready

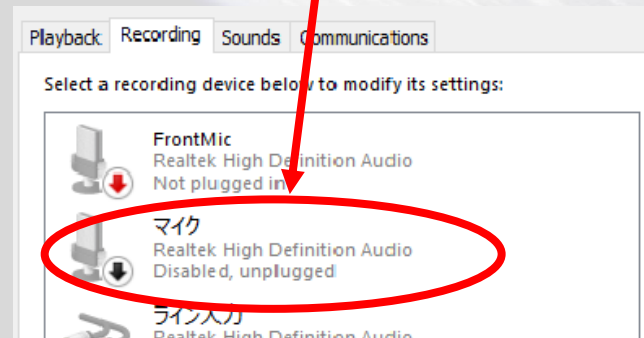
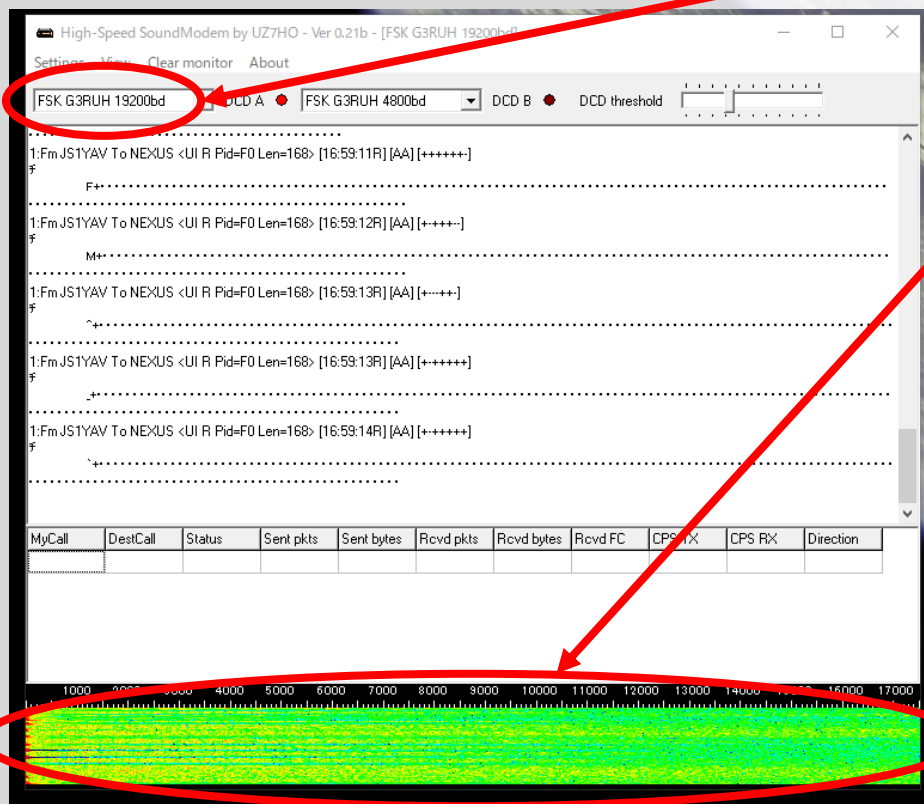
# Decode procedure

1. Prepare to be able to reproduce the received signal with SDR console. (Recorded wav file is also acceptable)
2. Start HSSmodem.

Select "FSK G3RUH 19200bd" when receiving 19.2kbps signal.

If the connection between the stereo mixer and HSSmodem is established, waterfall is displayed below HSSmodem.

※If the microphone array is enabled, sound will be picked up from the PC microphone, so open the sound settings and disable it.



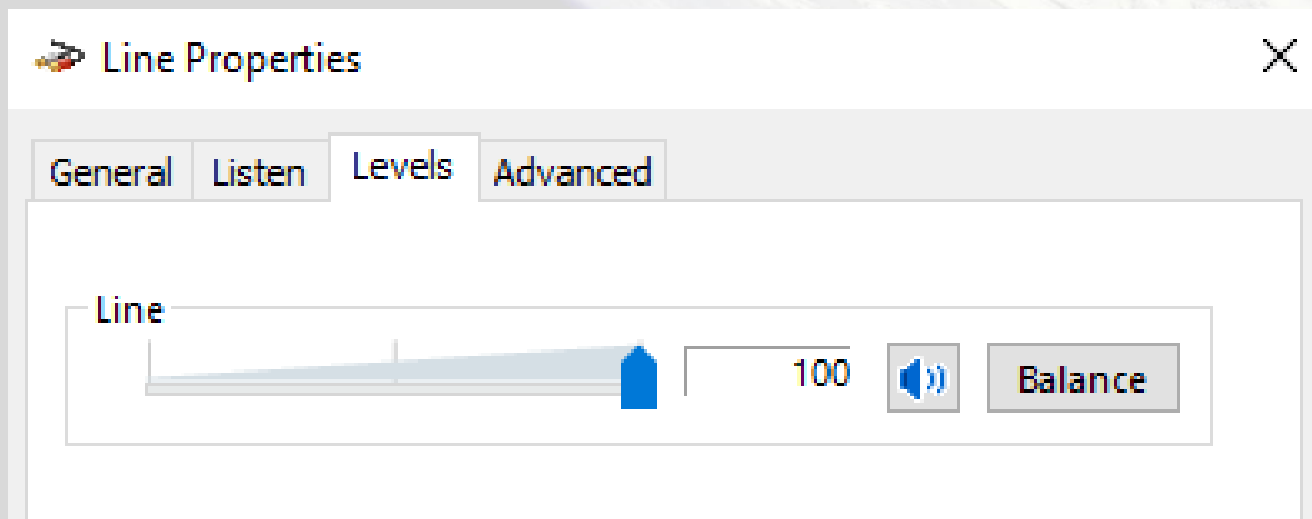


# Decode procedure

※If waterfall is not displayed.

→ Maximize the output level of the stereo mixer.

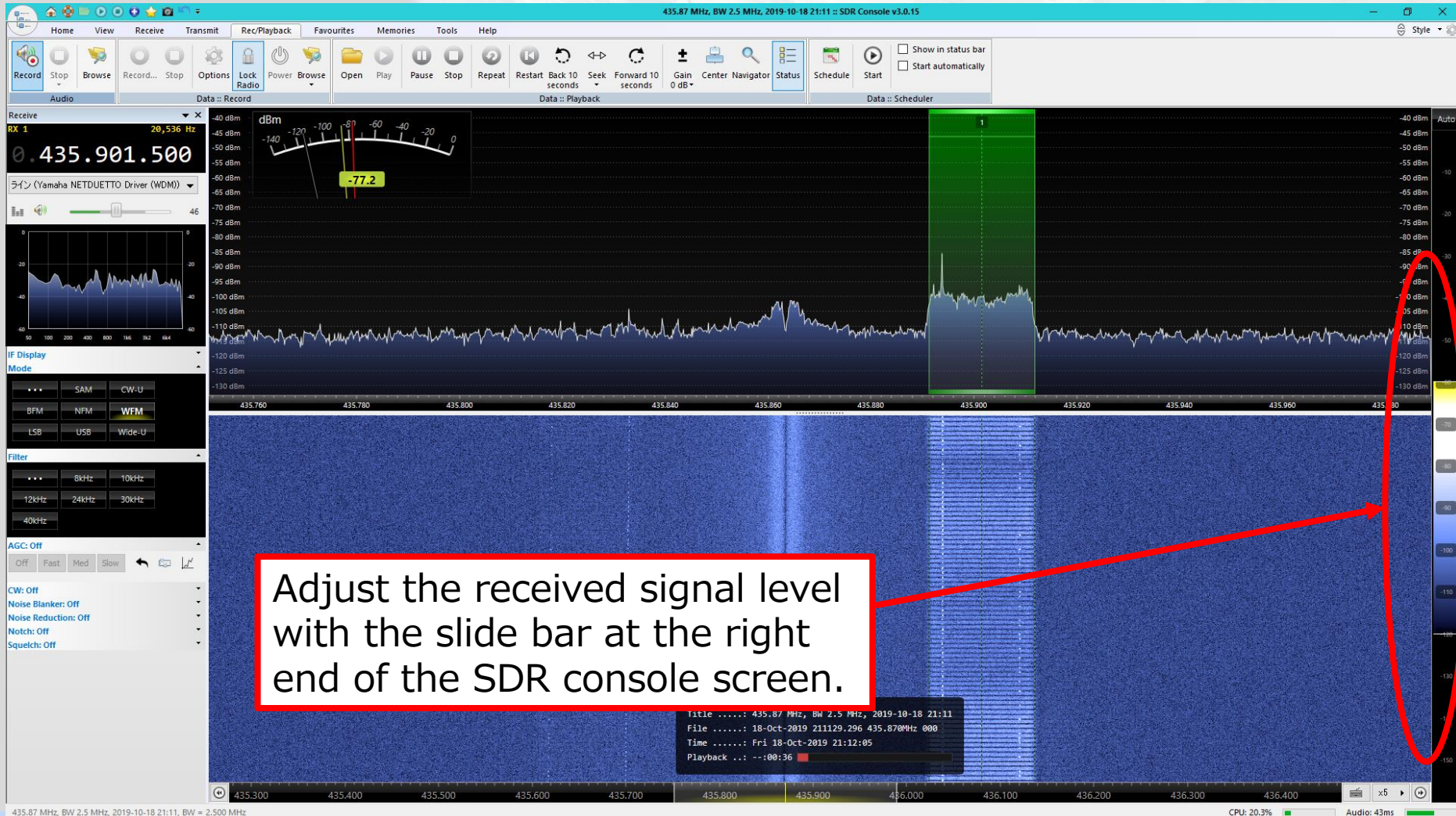
Sound settings → Right-click the stereo mixer (if there is no stereo mixer, "YAMAHA NETDUEETTO") → Properties → Level





# Decode procedure

※If waterfall is not displayed.



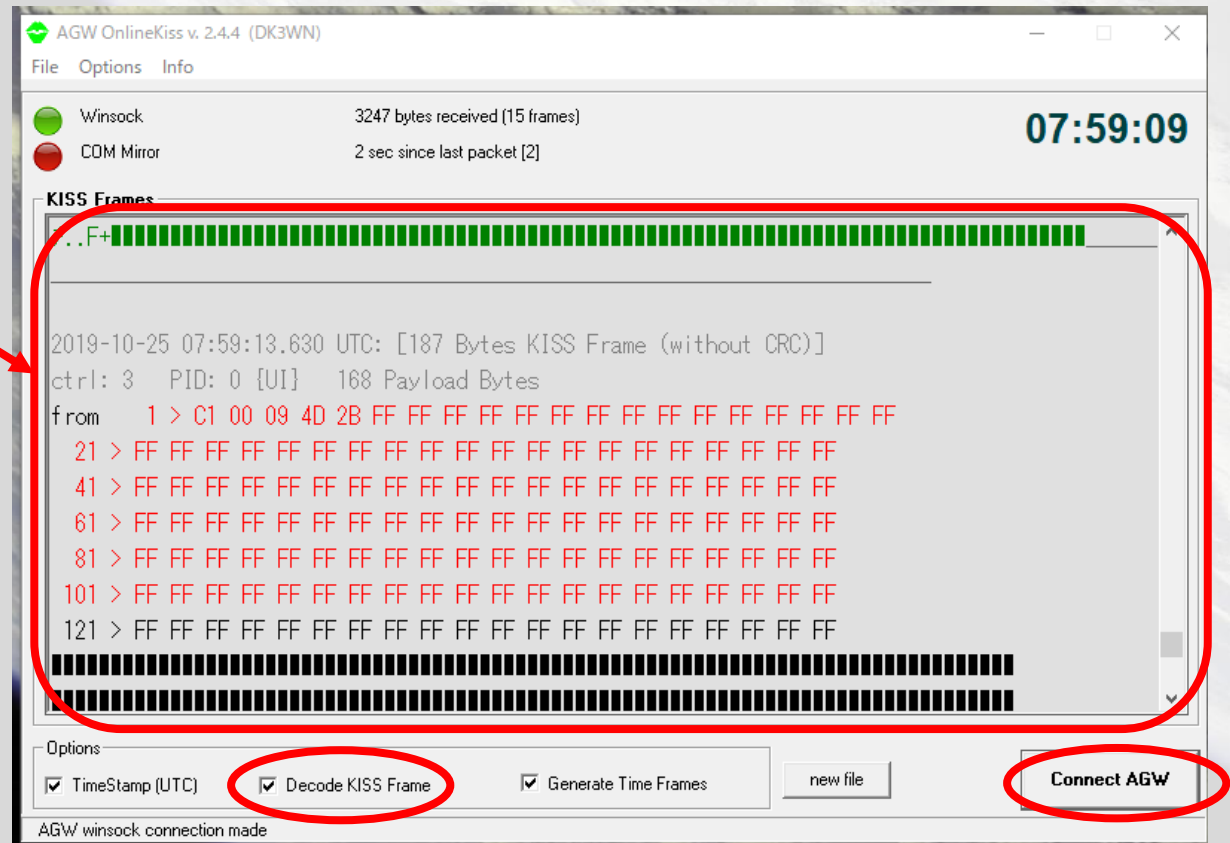
FSK19.2 demodulation method of  
NEXUS(FO-99)

# Decode procedure

3. Start AGW Online Kiss, check "Decode KISS Frame", and click "connect AGW".

If the connection between the stereo mixer and HSSmodem is established, the decoding result will be displayed.

※Decoding results (kss file, hex file) are automatically generated in the same folder as AGW Online Kiss.



# Decode procedure

※If AGW Online Kiss cannot be started

→The port in the PC used for HSSmodem and AGW Online Kiss may be Busy.

Open "hs\_soundmodem.ini" and change the port used in [AGWHost] and [KISS] to another number.

Rewrite "agw\_onlinekiss.ini" in the same way.

```
hs_soundmodem.ini - メモ帳
ファイル(F) 編集(E) 書式(O)
[Mobitex]
Sync=0xCCCC0EF0
[Modem]
RawPktMinLen=8
SwapPTTPins=0
Default1=1
Default2=1
DCDThreshold=13
AFC=32
TxDelay1=150
TxDelay2=150
TxTail1=50
TxTail2=50
Diddles=0
ModemType1=0
ModemType2=16
[AGWHost]
Server=1
Port=8010 <=8000
[KISS]
Server=1
Port=8110 <=8100
[Window]
Top=23
Left=59
```

hs\_soundmodem.ini

```
agw_onlinekiss.ini - メモ帳
ファイル(F) 編集(E) 書式(O) 表示(V) ヘルプ(H)
#
# This is the ini file for AGW_ONLINEKISS v. 2.4
#
#
PORT = 127.0.0.1:8010 <=8000
#
# TIMESERVER = ptbtime2.ptb.de
#
# MIRROR_COM_PORT = 7
# MIRROR_COM_SETTINGS = 9600,N,8,1
#
TIMEFRAMES = YES
LOGFILE = YES
PAYLOADFILE = YES
#
CALLSIGN = JA10GZ
#
AUTOSTART = YES
```

agw\_onlinekiss.ini