

Character communication and image exchange with XLX reflector

(Incomplete yet,)

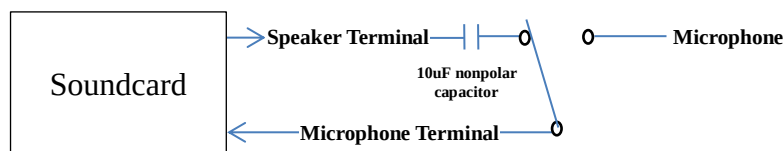
Shu JA3GQJ

With XLX reflector, VARIFront's mfsk (Multiple frequency-shift keying) mode and RTTY mode letter communication are possible. VARIFront (using the MMVARI engine) is a work of Kazu JQ1HDR. VARIFront uses the engine of MMVARI to exchange images (still, movie) files and music files, but the mode that can be handled is the same as MMVARI GMSK, FSK, FSK - W, BPSK, bpsk, rtty - L, rtty-U, mfsk-L, mfsk-U, pbsk-L, pbsk-U.

Originally I was interested in exchanging images and music files use of CQ-100 or HamsSphere of the Internet's virtual transceiver, and I was looking for a mode that I can use with XLX reflector on the premise that "letter communication is possible". Because my favorite JT65 mode could not be used, as I tried all the modes of VARIFront, I was able to receive character by mfsk - L by chance. After that, when rtty's baud rate is set to 15.625 which is the same as mfsk's default, I found that rtty-L can also be used, so I will summarize the experience here.

Precondition

- Be able to access the XLX reflector with ThumbDV or DVDongle and WinDV.
- To take VARIFront's signal and audio signal alternately into WinDV, a simple external switch (image below) is required.



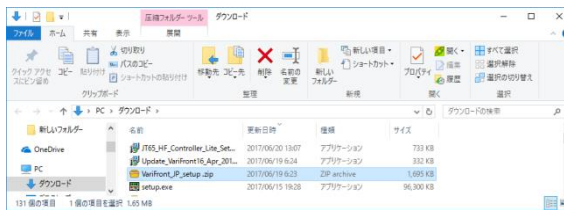
- To recognize that adjustment of speaker and microphone gain is very critical.
- Since WinDV and VARIFront runs simultaneously on one PC, one sound card is shared.
- Since it is necessary to devise a signal processing of VARIFront, I do not use a dongle that depends on a transceiver such as DVmega or DV 4 mini etc.
- Since MMVARI has a mode in which the baud rate setting does not match the XLX reflector, I use VARIFront.

1 . Download and install VARIFront (including update)

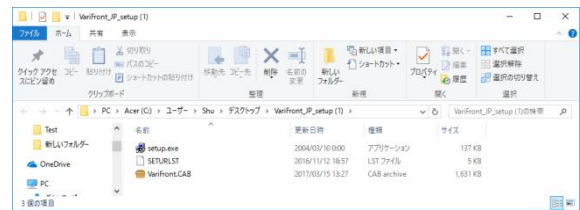
Download and install VARI Image Front from the following URL.

<http://www.qsl.net/jq1hdr/varifront/>

The downloaded VariFront_JP_setup zip file is in the download folder of the default Window 10, so decompress it and generate a setup executable file (setup.exe).

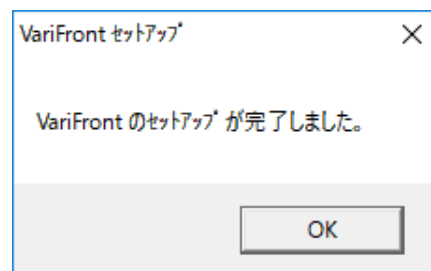
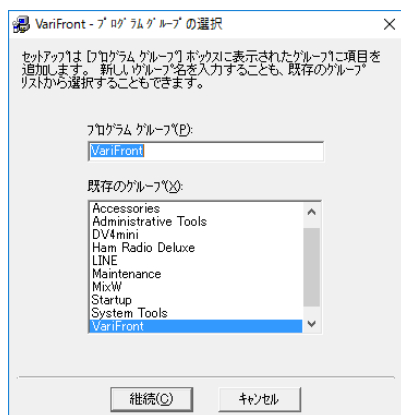
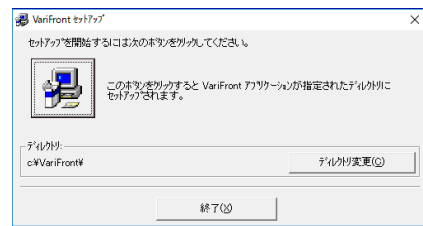
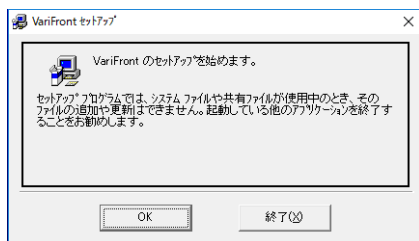
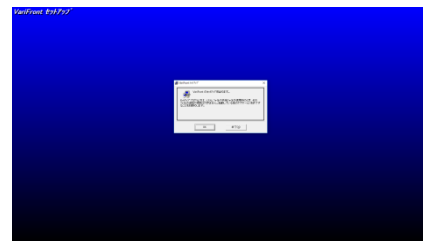
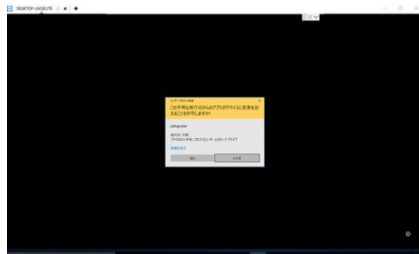


Downloaded VariFront_JP_setup zip file

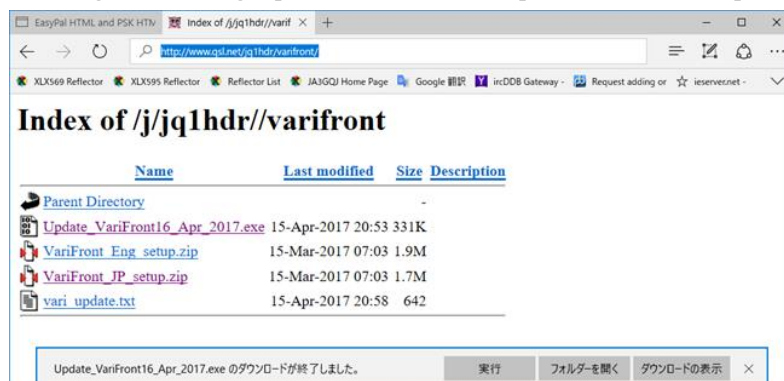


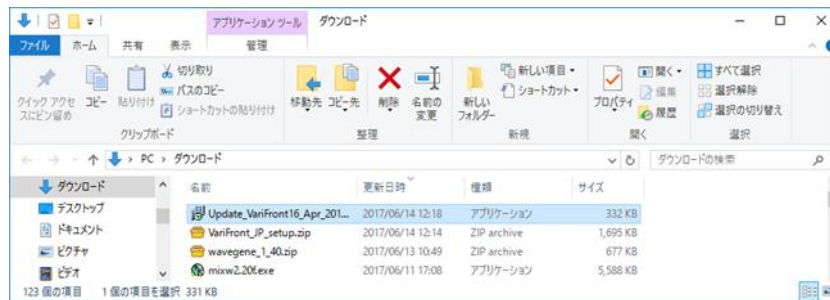
Generated setup.exe

Click on the generated setup.exe to start the installation, so the installation will be terminated according to the comments on the screen.

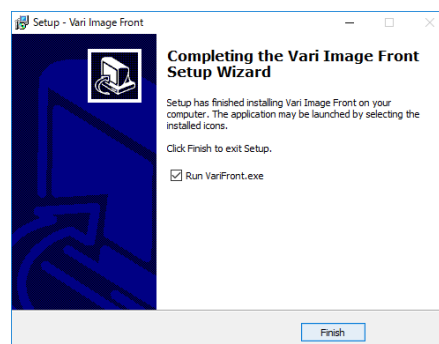
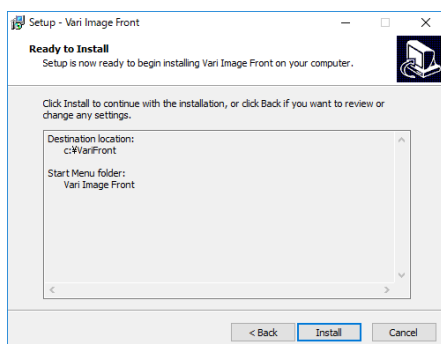
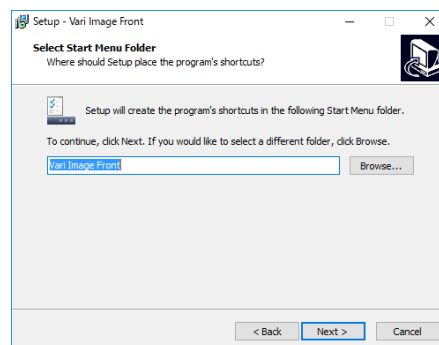
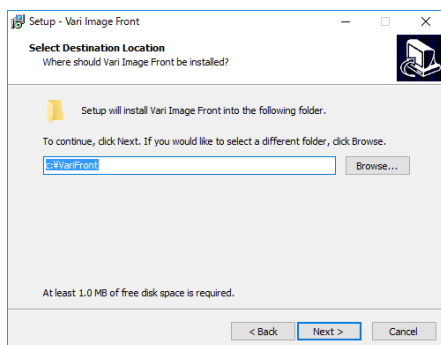
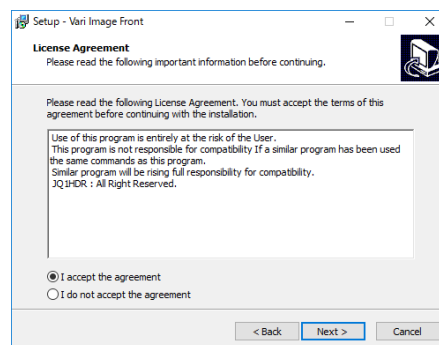
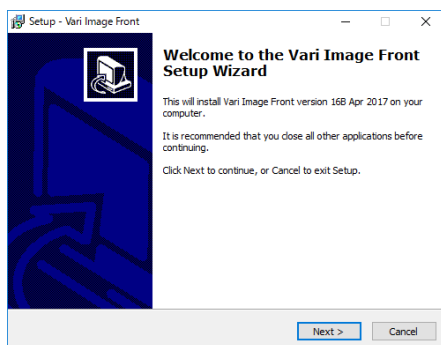


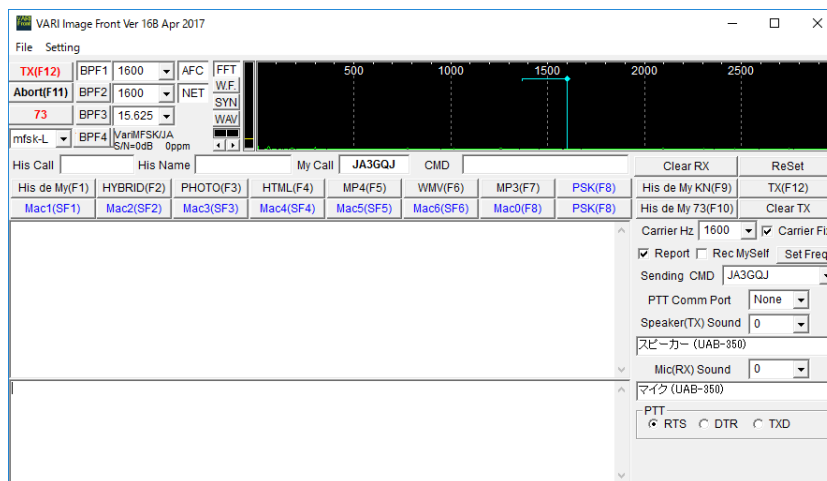
After downloading and running Update_VariFront16_Apr_2017 .exe, the update is completed.





Follow the display screen to proceed with the update execution, "VARIFront" will start when you finish.



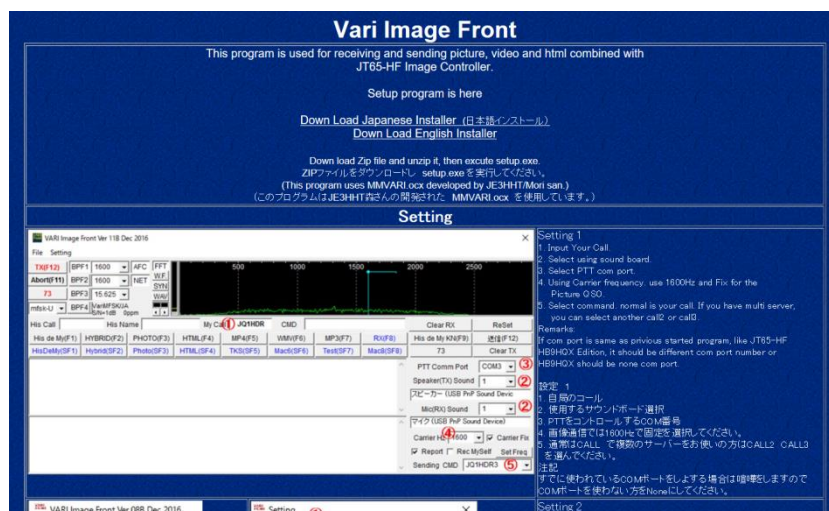


Screen to be launched after updating

2. VARIFront settings

We make simple settings on the screen that started after updating. Please refer to the following URL because the setting method of VARIFront for exchanging images and music files with radio stations is written.

http://jq1hdr.world.coocan.jp/easypal_eng/vari/varifront.html



Unnecessary setting items for XLX reflector

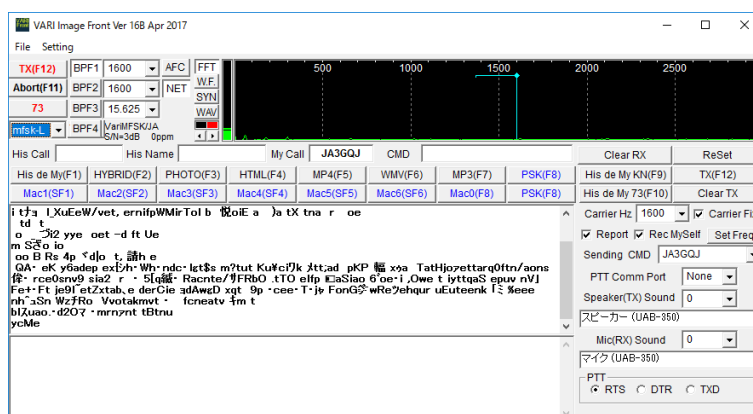
- At settings 1 : 3 (transceiver control) and 5 (image exchange) are unnecessary, but you better put your call sign at 5.
- Setting 2 is a setting for exchanging images and music files, but also it is recommended to set it for XLX reflector as well.

3. Character communication start

Sending

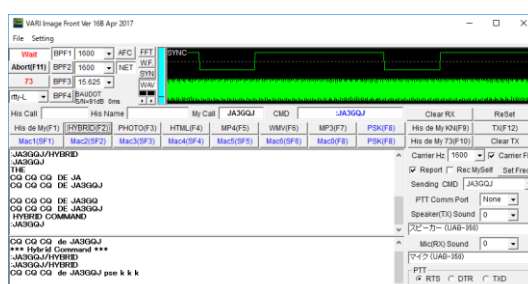
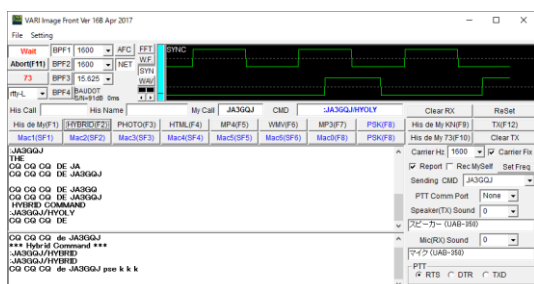
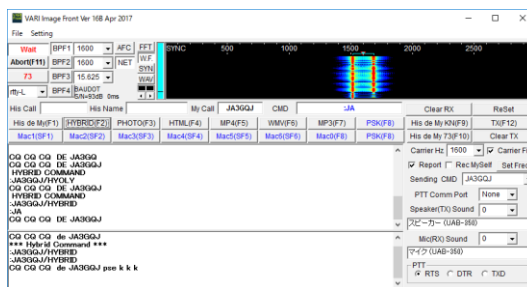
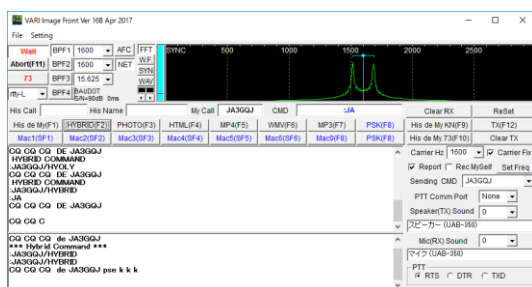
- After finishing the setting of VARIFront, start WinDV and link to the desired reflector.
- Select mfsk - L or rtty - L from the pull - down menu of VARIFront operation screen.
- BPF1 (ON), BPF2 (OFF), BPF3 (OFF), BPF4 (OFF) are default.

- The number to the right of BPF 1 and BPF 2 is the default 1600.
- Select 15.625 from the pull-down menu on the right side of BPF 3.
- Turn off AFC with click on it.
- NET (ON), FFT (ON), WF (OFF), SYN (OFF), WAV (OFF) are all defaults.
- "Carrier Hz" on the right side of the screen is 1600 and put a check mark is on the right "Carrier Fix", also put check mark at the "Report" and "Rec Mycall".
- Enter your call sign in "Sending CMD".
- "PTT Comm Port" is None, "Speaker (TX) Sound" and "Mic (RX) Sound" are zero(0) because there is only one sound card. If you have more than one sound card, you can choose another card to use for VARI in the pull-down menu.



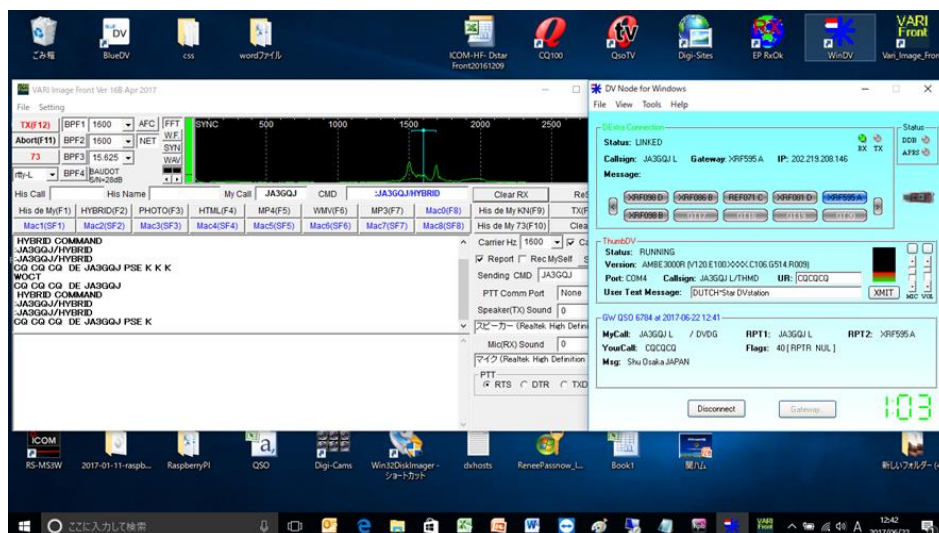
- 16 buttons aligned from left to right in the screen are macro buttons, and black character buttons are Macro for exchanging images and music files is set by default. "His de My (F1)" on the far left can be used for the reply, the second from the right end "His de My KN (F9)" can be used for standby, "His de My 73 (F10)" can be used for the end of QSO. And blue buttons let you set macros yourself. (This part is different from the original MMVARI.)
- Received characters are displayed on the screen below the macro button, and sent letters are displayed at the time of sending. You can clear the reception screen with the "Clear RX" button on the right.
- When you do not use Macro, input characters to the screen under the received character display screen with the keyboard. You can clear the transmission screen with the "Clear TX" button at the far right.

To send, use the red "TX (F12)" button on the upper left of the screen, and the reception with the black character "Abort (F11)" below it. Transmission / reception is done automatically when macros are set.



Reception

Reception is easy as the setting of VARIFront is over. I am running WinDV and VARIFront simultaneously on a Windows 10 laptop computer, It was possible to receive rtty-L by simply picking up the internal speaker's sound with an external microphone.



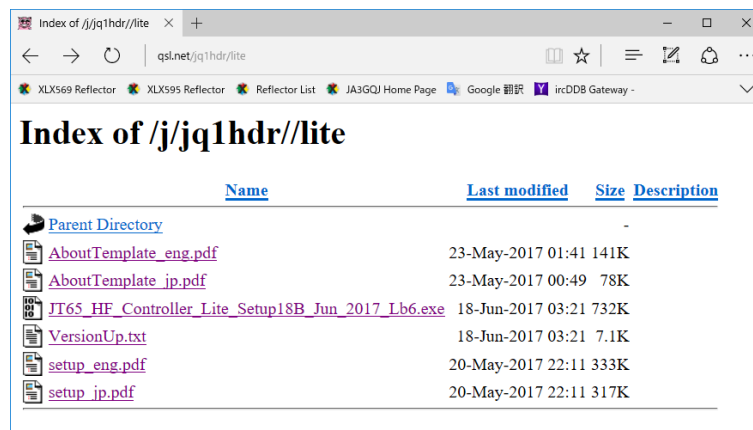
Enlarged by screen shot

- With VARIFront, you can character communicate on the XLX reflector, but VARIFront is mainly used in image exchange. New software for image exchange has just issued at a very good timing. I will summarize how to add image exchange software to ThumbDV, WinDV, VARIFront.

4. Exchange images with XLX reflector

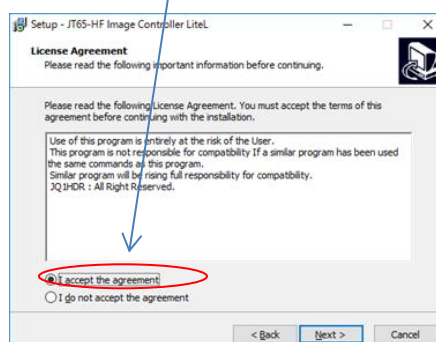
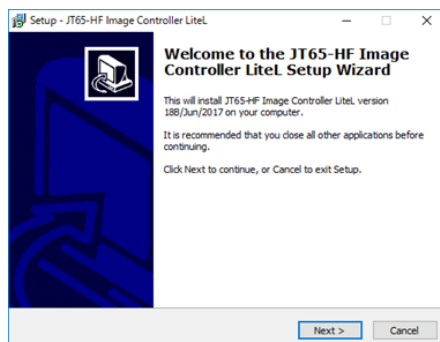
First of all, download JT65_HF_Controller_Lite_setup18B_Jun_2017_Lb6.exe and setup_en.pdf from the following URL and install it.

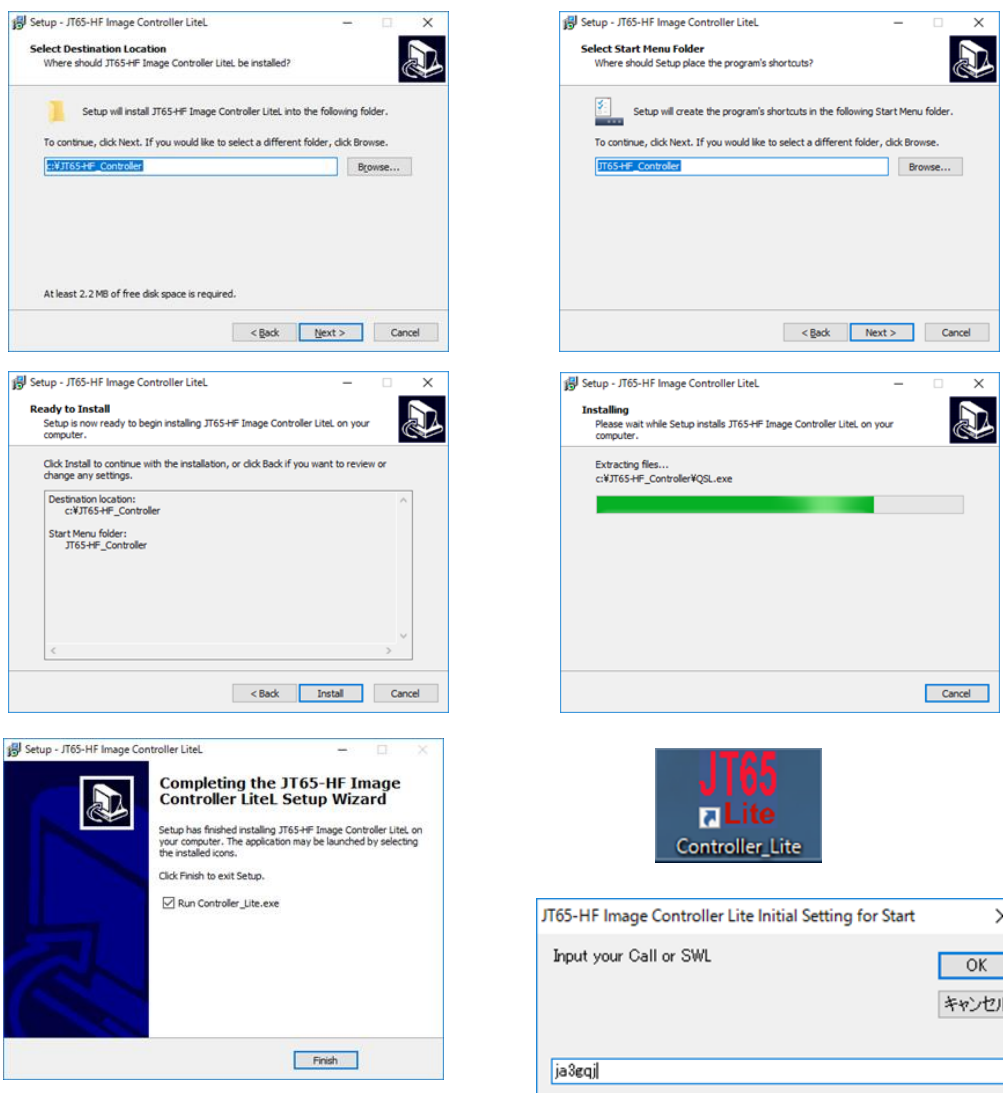
<http://www.qsl.net/jq1hdr/lite/>



5. Installing JT65 Image Controller Lite

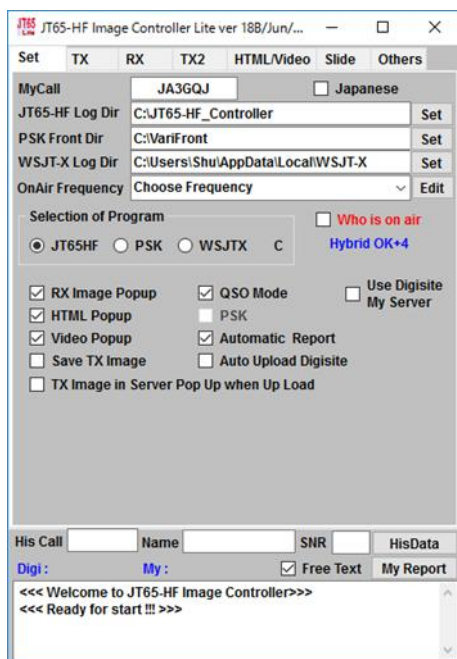
- The downloaded JT65_HF_Controller_Lite_setup18B_Jun_2017_Lb6.exe file is in the download folder of the Window 10 default. Execute this and click the "NEXT" button or "Install" button on the popup screen to proceed sequentially.
- When you click "Finish" button, JT65 Lite shortcut icon is created on the desktop and JT65 Image Controller Lite is started up.
- After entering the call sign into the popup screen, it becomes the control screen of "JT65 Image Controller Lite". Do not forget to select "I accept the agreement" on the License Agreement screen.



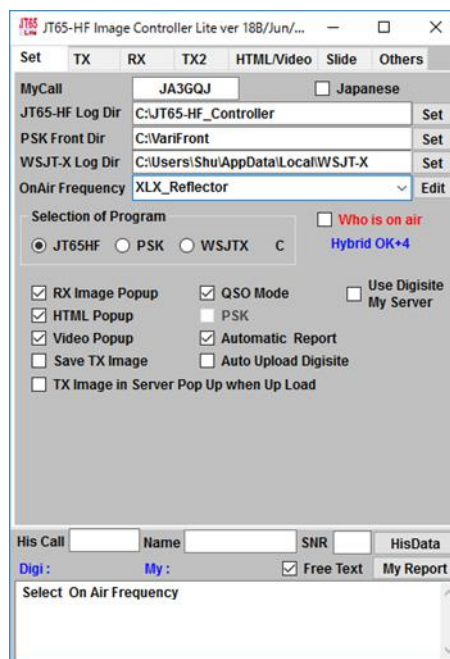


Initial start screen and image preparation and transmission

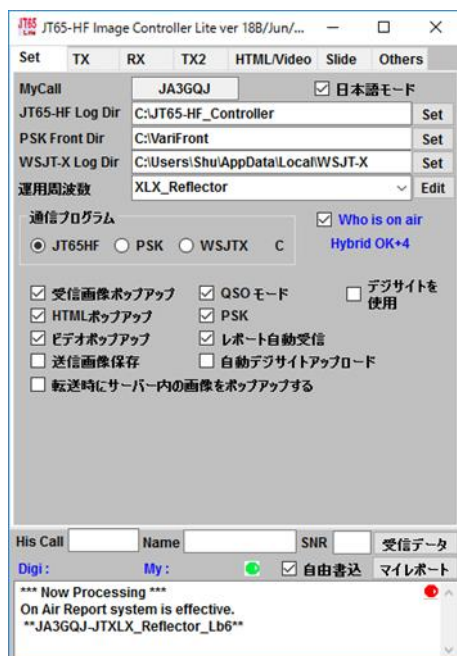
When the screen of JT65 - HF image Controller Lite is displayed immediately after installation, you can prepare and send images with the next procedure immediately. There are seven tags on the screen, but only three are used this time, Set, TX and RX.



It is the screen of SET tag. All other than "OnAir Frequency" are set by default.



It is the screen of SET tag. Set "OnAir Frequency". In the case of radio, you can select the frequency with a pull-down menu, but here we will use it as a reflector.



It is the screen of SET tag. put check mark at "Who is on air" and "PSK". The red letter "Who is on air" turns blue.



Select the TX tag. Click the "Load Picture" button to open the image folder (below) and prepare the image to be sent.

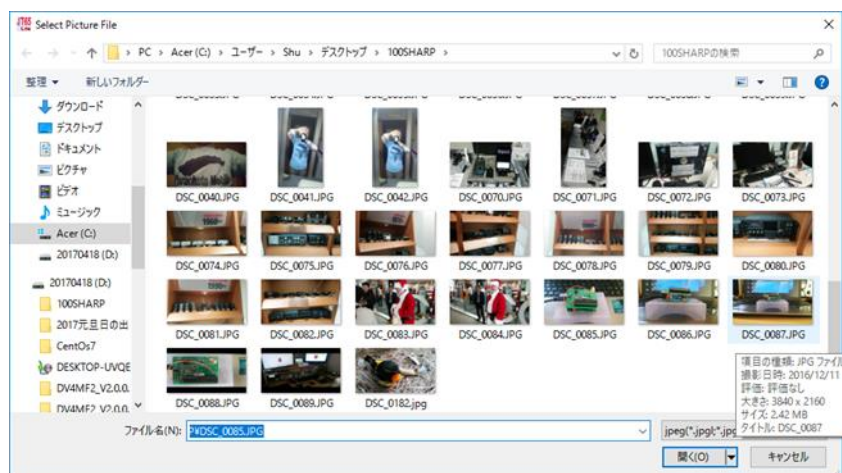


Image saved to send in the folder

- Pasting the image to send on the TX tag in the above procedure.
- The image storage folder must be prepared in advance.
- The image format at the present time should be JPG.
- Focus on the image with the opened folder and click "Open (O)" button or double-click on the selected image, the corresponding image sticks to the TX tag. (Lower left)



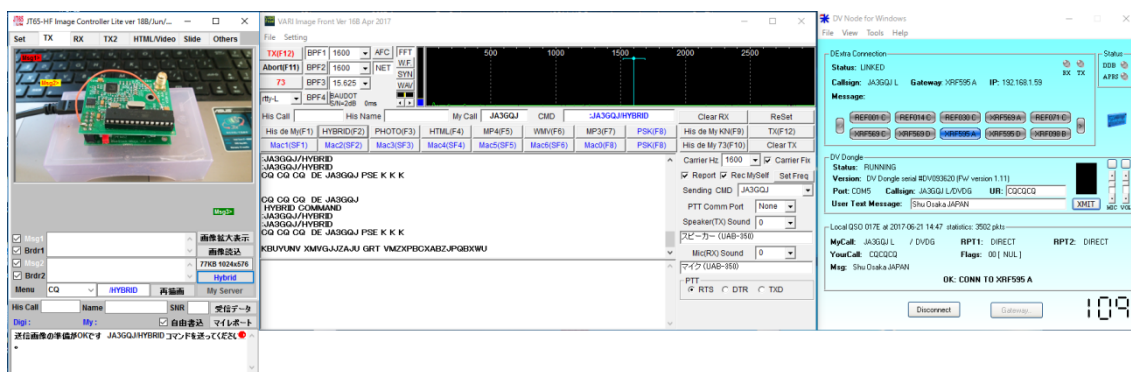
When the transmitted image is pasted, click the "Hybrid" button in red.



Next, the color of the "Hybrid" button is changed to blue, and the message "Picture Ready for TX Use callsign/HYBRID command" is displayed at the bottom of the screen.

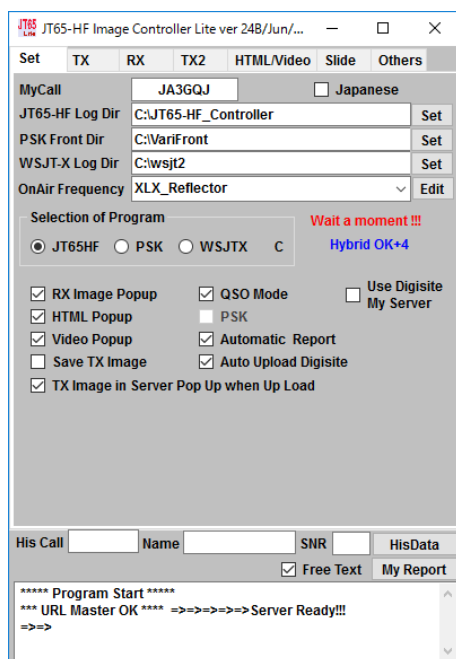
Send Image

- With this, you were able to prepare images to send.
- Confirm that WinDV is linked to the target reflector. Turn on the "XMIT" button and then click the macro button "HYBRID (F2)" on VARIFront to start sending.
Since you checked "Rec MySelf" of VARIFront, the image being sent just before the transmission end will pop up on the desktop.
- The setting of VARIFront to send images is the same as character communication.
- Read setup_en.pdf as well.

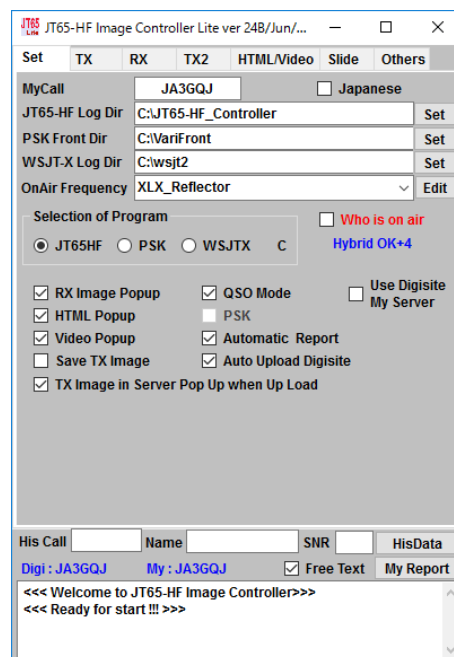


Next startup screen

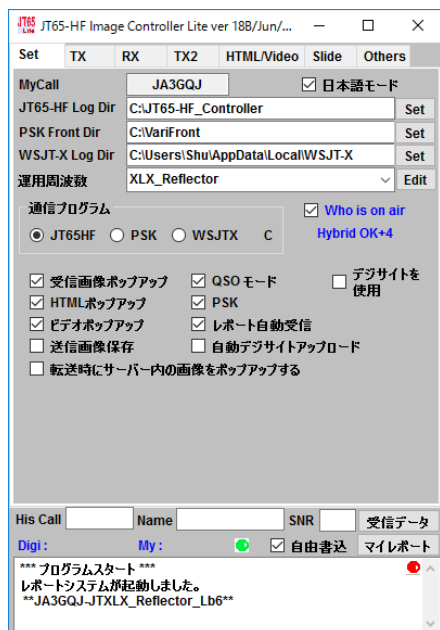
The startup screen immediately after soft installation and the screen to be started from next time are somewhat different, but preparation procedure of sent images is the same.



起動中、画面下部に進行状態が表示される



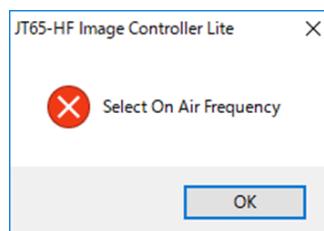
画面下部に起動準備完了が表示される



Put check mark at "Who is OnAir" and "PSK" every time.

A comment stating that the program can be used is displayed at the bottom of the screen.

If "Who is OnAir" is not checked, the next screen pops up when preparing the image to be sent.



Common Failure



送信画像を準備したつもりで Hybrid ボタンの文字の色もブルーになっているにもかかわらず操作間違いが原因で画面の下部に「No image is on TX」（左図）と表示されている場合、文字は正しく相手に届いても画像が届かないことがよくあります。画像を再度読み込んで赤文字の Hybrid をクリックして、文字がブルーになることを確認してください。

Received image

Images sent from the other station are displayed on the RX tag and popup on the desktop as well.

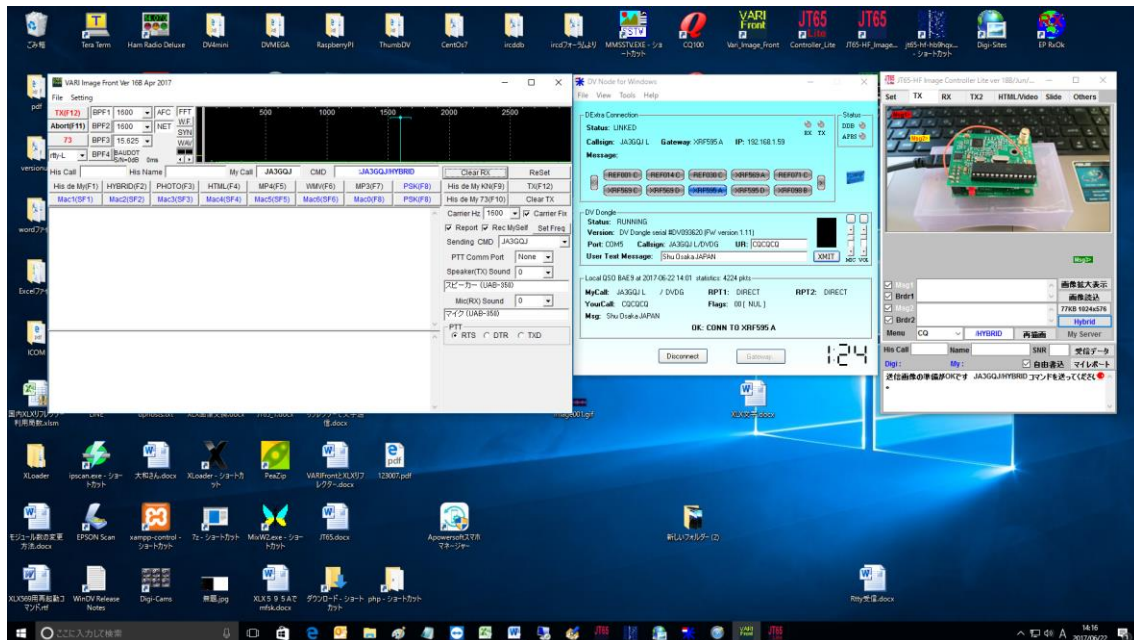
Since you checked "Rec MySelf" of VARIFront, your sent image is also displayed on the RX tag.
(Right figure)



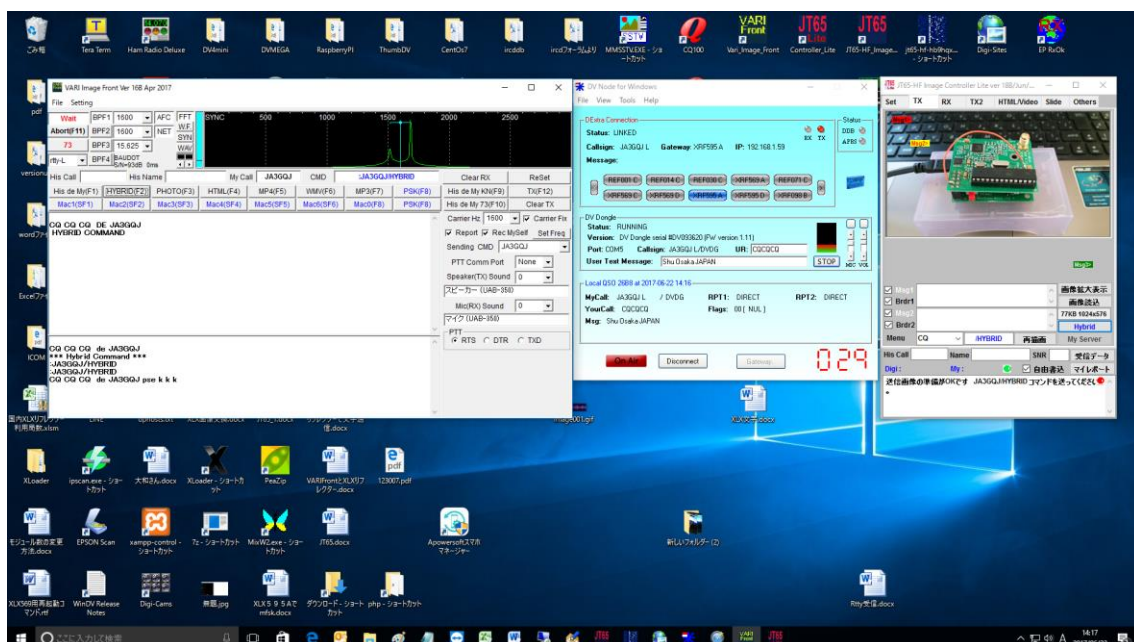
Image transmission / reception reference screen

Sender

- Windows10,32bit Disk-top personal computer
- XLX reflector、XRF569 A
- NTT optical line (A company), Raspberry Pi server (first floor). Wired LAN with power line between router and computer (second floor).



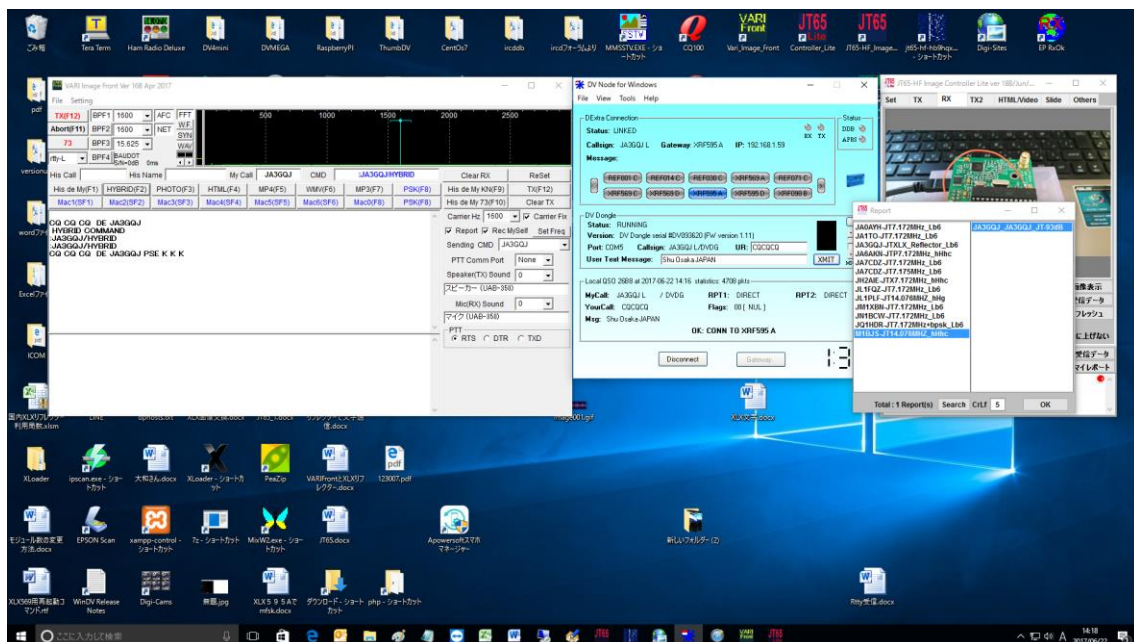
Sending standby, From left to right, "VARIFront", "WinDV", "JT65-HF image Controller Lite"



During transmission



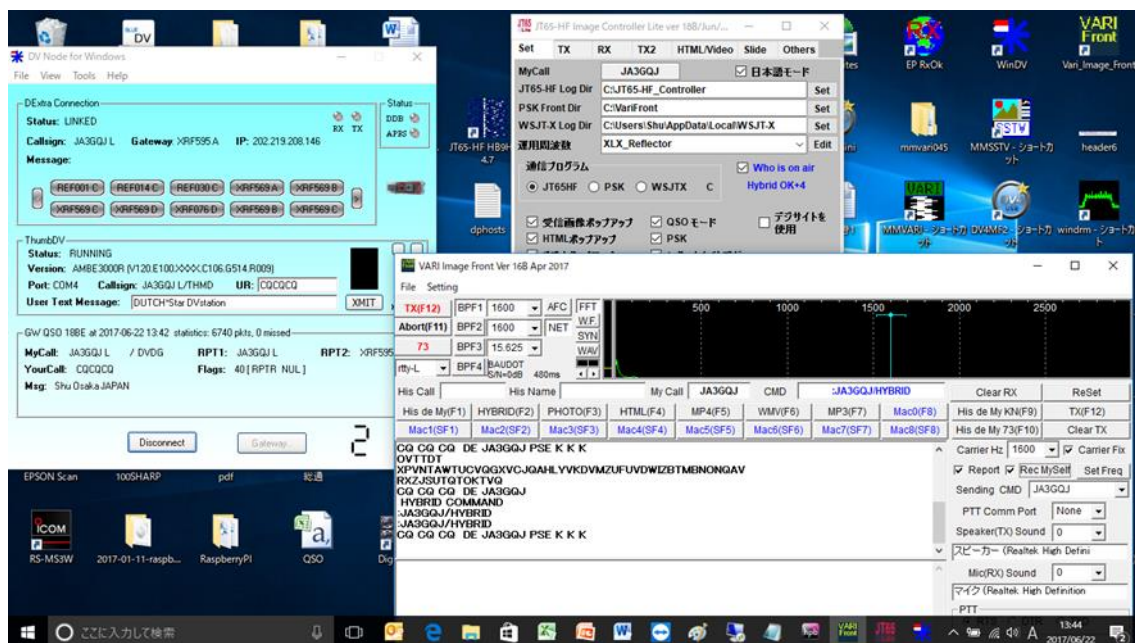
The transmitted image pops up on the screen just before the end of transmission.



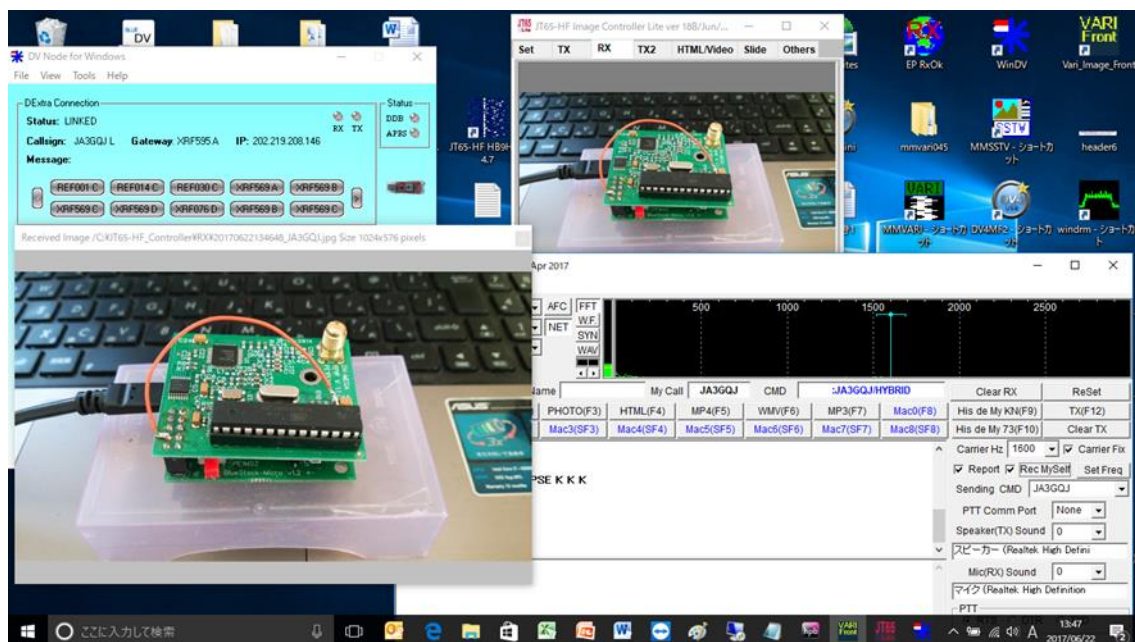
Termination of transmission, the list of stations currently in QRV is also displayed TX changed from RX to display the transmitted image

Receiving entity

- Windows10,64bitLaptop computer
- XLX reflector、XRF595 A
- eo optical line (B company) and Raspberry Pi server (first floor). Wireless LAN between the router and the personal computer (the second floor).



Receive standby, left "WinDV", upper right "JT65-HF image controller Lite", lower right



Reception end, the received image pops up on the PC screen (lower left) and RX tag displays received image.

AS of June 30, 2017