# RF Monitor 2ch sample software (V2.0)

Jul/06/2013

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## 1. Outline

This application software is for the U3800 series 2-channel Spectrum analyzer (SA). When we use this software, it will forward the trace data from SA to personal computer and display 2-channel screen on the personal computer. Two screen display and the overlay display to say nothing of one screen can be done as a method of the display. In addition, the basic function can be remotely controlled.

As for the preservation of the data, both the SA screen (Screen shot) and the personal computer's data can be done. We are very happy if it helps in a wave monitor etc. even a little. (This software is free software.)

## 2. System configuration

Spectrum Analyzer: U3800 series

Initialization of SA: Confirm the following basis mode.

Trace 1001 points, and AT GPIB command modes

When two channels are independently used, it sets it to the asynchronous mode. (Trig Sync mode On/Off is in condition menu.)

Personal computer: Windows XP/ 2000 (OS that has been confirmed)

Interface: LAN or GPIB (Use NI)

(Please refer to LAN GetTrace sample software for LAN connection)

## 3. Installation

Execute setup.exe that exists in this software. Operate it according to the instruction of the screen while executing it.

**4. Start**

Execute "RF Monitor 2ch" there because the menu named "U3800 RF_Monitor2ch" is made for the start menu of the personal computer.

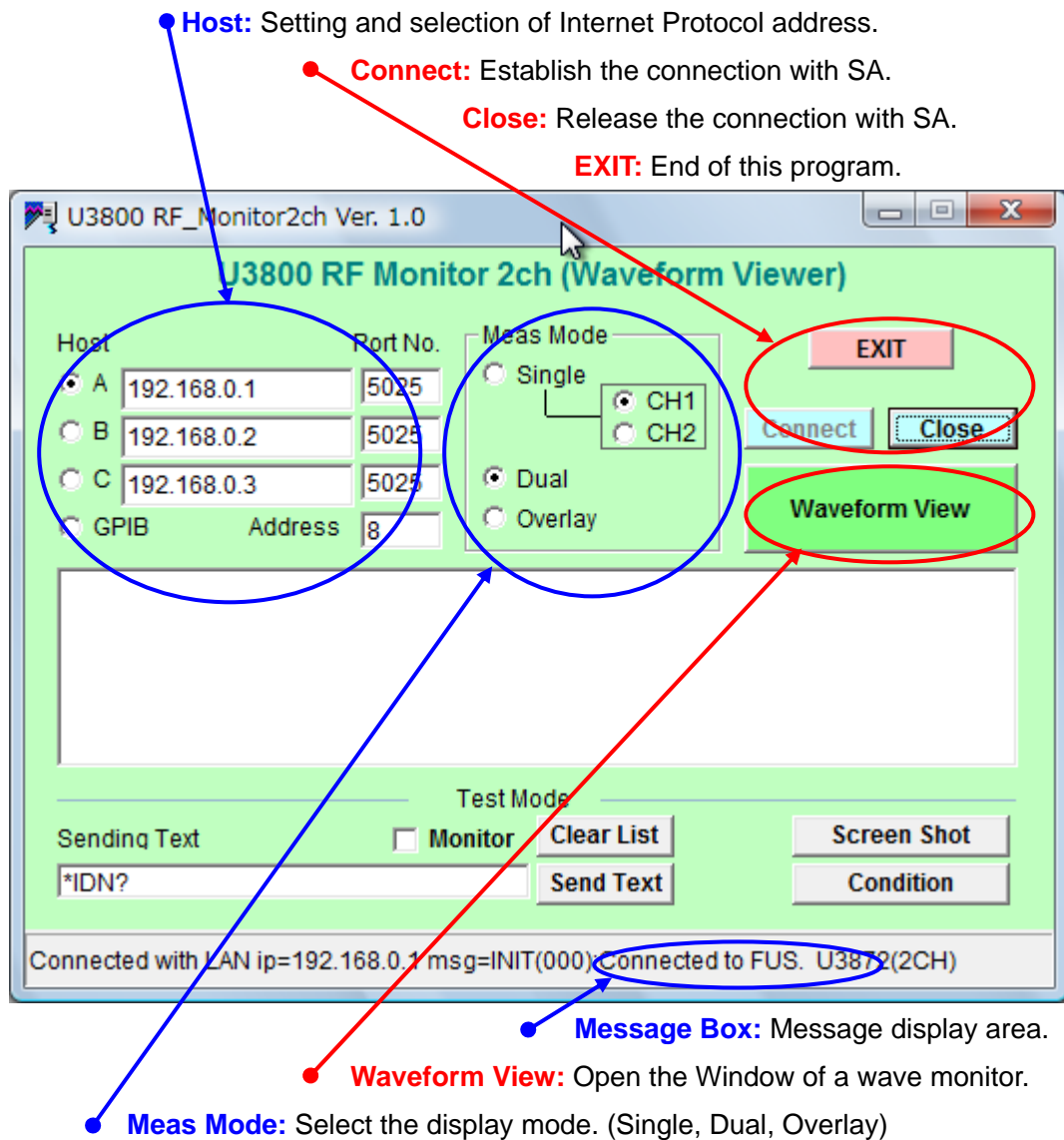The following initial screen (the first screen) is displayed.
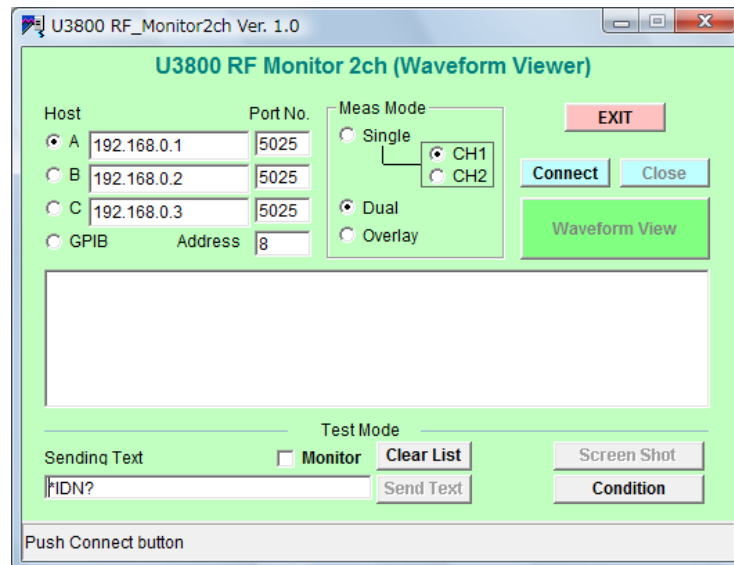


**5. Click the Connect button and connect it with SA. (LAN or GPIB connection)**

When the connection is completed, connected message is displayed in the display area of under figure.

**Connected procedure:**

- Set the address of SA. (Refer to the setting of Internet Protocol address of "P.9" for details.)
- Set Internet Protocol address of SA to the Host address column. (Port No. is 5025. )
- Select Internet Protocol address from A B C, Or choose GPIB and set the address.
- Connect Ethernet cable. (Or GPIB cable)
- Click the Connect button.

**Explanation of panel:**

● **Host:** Setting and selection of Internet Protocol address.

● **Connect:** Establish the connection with SA.

**Close:** Release the connection with SA.

**EXIT:** End of this program.



● **Message Box:** Message display area.

**Waveform View:** Open the Window of a wave monitor.

● **Meas Mode:** Select the display mode. (Single, Dual, Overlay)

**Condition:** Set condition for Screen Shot and data storage (Refer to chapter 7.)

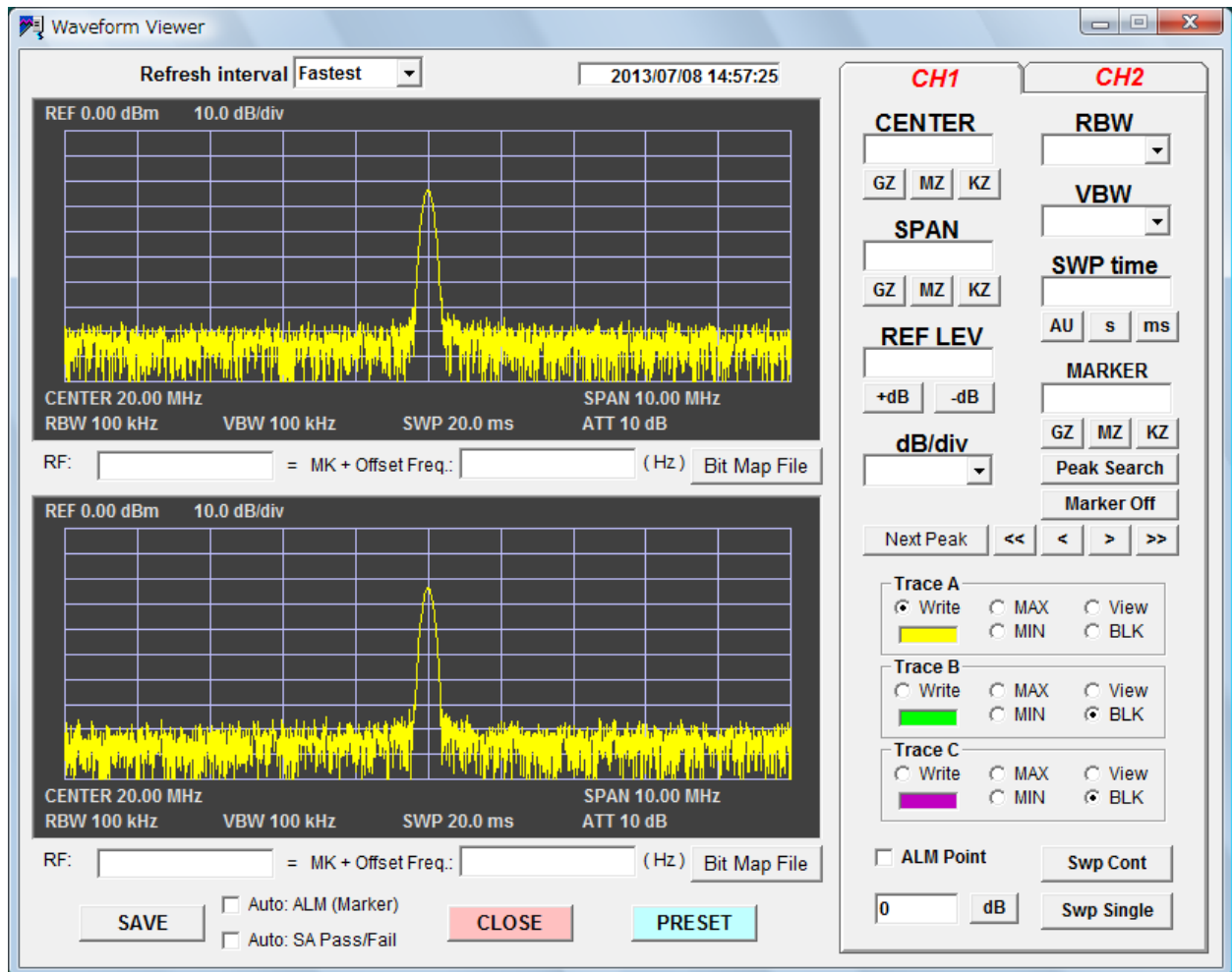**Screen Shot:** Execution of Screen shot (Refer to chapter 9.)

**Send Text:** Send the GPIB command text. (Refer to chapter 11.)

**Clear List:** Clearness in display area (monitor) used by test mode

**Monitor:** The reading data is displayed when check is ON.

**6. When Waveform View is clicked, the shape of waves is displayed.**

**Example of two screens:** Meas Mode (display mode) has selected Dual.



- A basic setting of SA can be done from this screen. (CH1 and CH2 click the tab.)

- The Bit Map File key preserves the bit map file of this wave screen in the personal computer.

- PRESET is reset of SA: (Need wait for a few seconds because of all the initialization settings.)

- The TRACE is possible three traces. (A, B, C) The active trace is displayed automatically.

    The control command of the trace mode is sent from this software to SA, and the waveform

    data of SA is acquired. Caution: The Trace Calc mode is changed by setting MAX and MIN.

    Please use it in the state of WRITE when you use the Trace Calc mode in other modes.

-The offset frequency can be added when the IF frequency of the equipment is measured with the marker, and it display it as an actual RF frequency.
(The data of the offset frequency can be arbitrarily input.)
-The SA settings other than the panel can be set using test mode. (Close: move to 1<sup>st</sup> screen)
Set the GPIB command and send it by using the Send Text mode. Waveform View afterwards. Click, and display the screen again.
-When the GPIB command manual is not near here, and the adjustment with more detailed manual operation can be done.
Select STOP with Refresh Interval. Set the SA local and set it by the manual operation afterwards. Set Refresh Interval Fastest etc. after it ends.

**Example of one screen:**
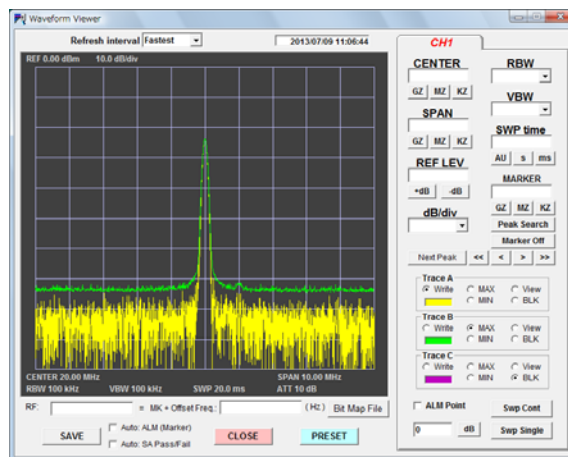


**Example of overlay:**
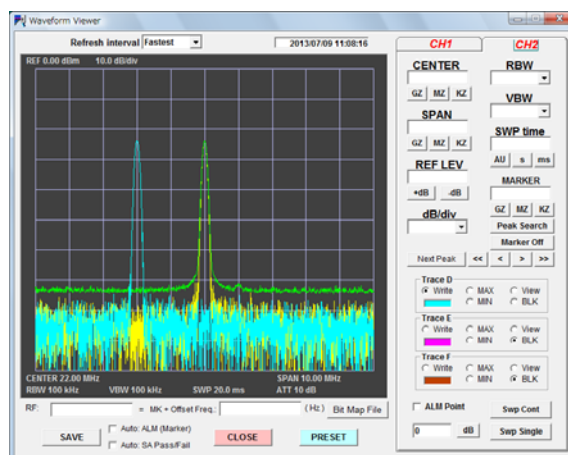
**7. About the condition setting screen**

The storage directory of data, file Header for the data form identification, and the setting of SA.

There is a set menu of the recall function that changes it by batch and the channel power menu.

Click the Condition key on an initial screen (form main menu).



-Save Directory display: Directory where measurement data and screen shot are preserved

(When the name is long, Directory is specified though the display is lacked.)

-The Select Directory key: The directory can be specified.

-File Header of Screen Shot File: Header character of screen shot file name

-File Header of Data File: Header character of measurement data file name

(Character string to which file name is added first because of identification)

-Beep of Data Save: There is a sound at the save of data (means error) when there is a check.

-Trigger Sync of Sweep: The synchronized sweep mode is turned on when there is a check.

(Previous SA condition is maintained if it never sets it.)

-Recall SA condition file (Set and Return): It is a recall as for the condition of the measurement.

It is possible to do. It is a configuration file in the SA from CDA00 to CDA09 beforehand.

Select the file that is the recall by the pull-down.

Press the return key. (Or, input an arbitrary file name.)

-CH1 Channel Power: Set the channel power condition of CH1.

-CH2 Channel Power: Set the channel power condition of CH2.

A center frequency and the width of the frequency of the measured channel are input, and

It turns on.

-Select CH1/2 Input.

Pre-AMP can be selected with U3841, U3851, and U3872-Low Input.

Input High and Low can be selected with U3872.

(It is necessary to set it when using it excluding initialization.)

-Spectrum Analyzer's Screen ON

The SPA screen can be turned on while even monitoring it. If you want to set ON,

Please set the Color 2 of Color pattern. (The color will be steady.)

(SYSTEM -> Config. -> More1/2 -> Color Pattern -> Color 2)

-The Open Viewer key: Open the Window of a specified directory.

**Example: Open Window with Open Viewer.**
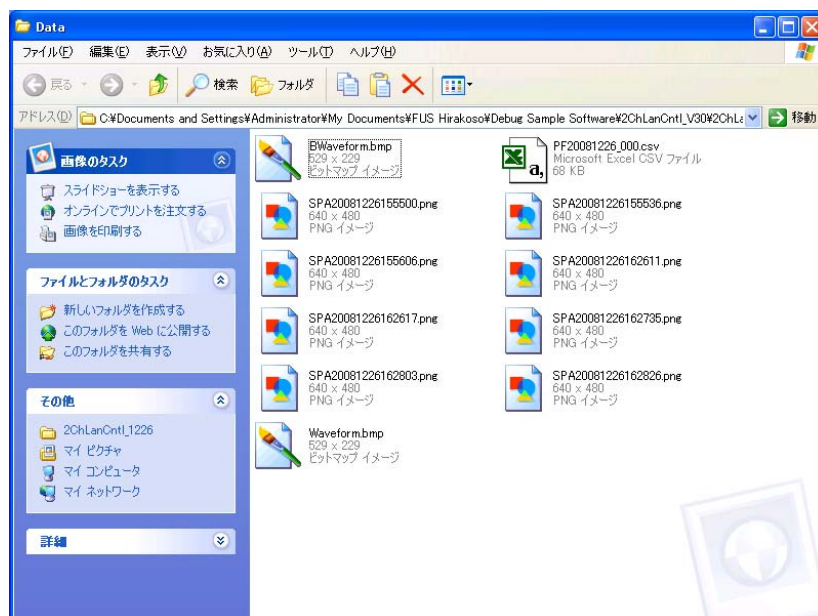


If the CSV file is double-clicked, data is seen in Excel.

If the PNG file is double-clicked, the SA screen is seen.

**8. About the data storage of the personal computer screen (The PC screen is preserved according to the numeric character data: CSV File)**

As for the preservation of data, three kinds of the following are possible.
(Refer to the Waveform Viewer screen for the button.)

**SAVE:** Preserve present data whenever you push the SAVE key.

**Auto: ALM Point:** When the marker level or the channel power and the ALM data are compared, and the state of Pass/Fail changes, it is auto-saved.
(The channel power gives priority when both are set.)
This menu is checked to turn it on, and the ALM data, marker or the channel power is turned on.

**Auto: SA Pass/Fail:** The Limit Line and the Pass/Fail function of SA are turned on.
And, when the state of Pass/Fail changes, it is auto-saved.
(The setting of Limit Line and Pass/Fail is necessary for the SA.)

When there is a change in Pass/Fail, that is, the judgment changes from Fail into Pass from Pass to Fail, the auto-save is executed.
Data file is made with the CSV file.
The file name becomes header + measurement day + serial number.
The serial number is automatically updated when the line of data exceeds 64000, and a new file is made.

**Example: Set the ALM data to -35(dBm), and set the marker.**

When the marker level lowers more than the ALM data or the marker level rises than the ALM data, it is auto-saved. (It is this repetition.)
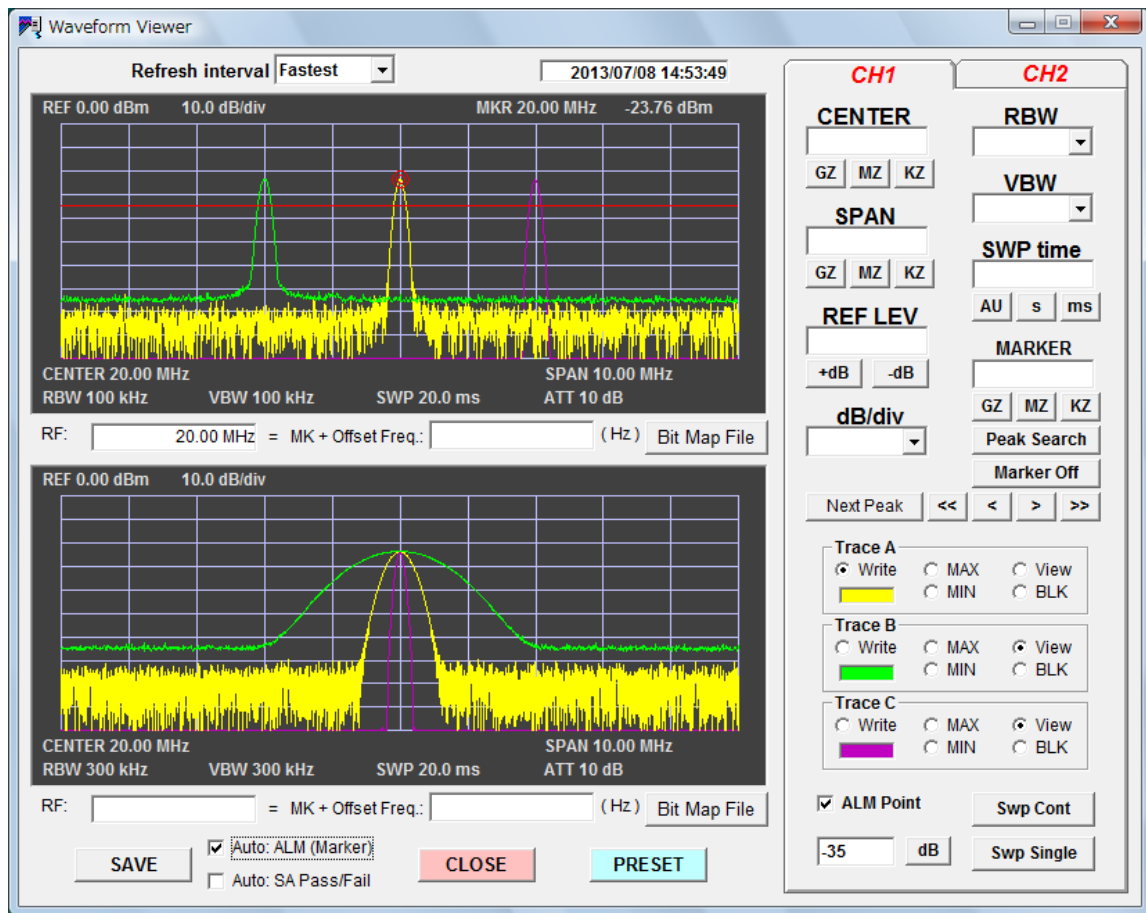


## 9. About the screen shot (screen data on SA preservation: PNG File)

When the Screen Shot key to the first screen is clicked, a present SA screen is preserved by the personal computer. This becomes not the screen of the personal computer but the screen of SA. It is an image that the copy destination becomes not the USB memory but a personal computer to the SA though the function to copy the screen is provided directly in the USB memory. The file name becomes file header + date + time (every one second).

**Example of screen shot:**

Open the Window with Open Viewer, and double-click the PNG file.
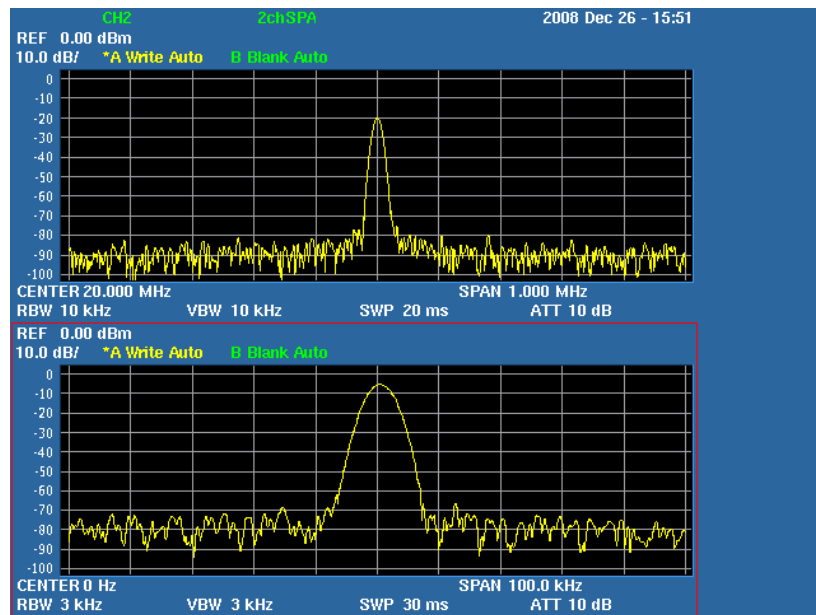


## 10. About Bit Map File (preservation of personal computer screen data: BMP File)

It is preserved in the directory that the screen of the personal computer specified.

It becomes another screen at two screens.
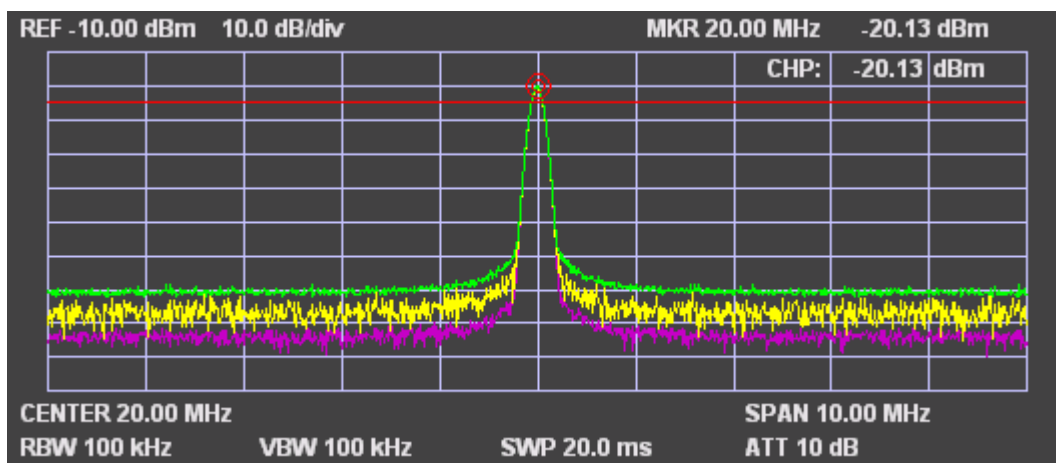
**11. About Test Mode**

When the GPIB command is written in the Sending Text column, and the Send Text key is clicked, the command is forwarded to SA. If the Monitor is checked when the command is query, the read data is displayed.　(*caution: Only a single command for reading)

(Make the check on Monitor Off when you select Waveform Viewer.)

**Example of Test Mode:**
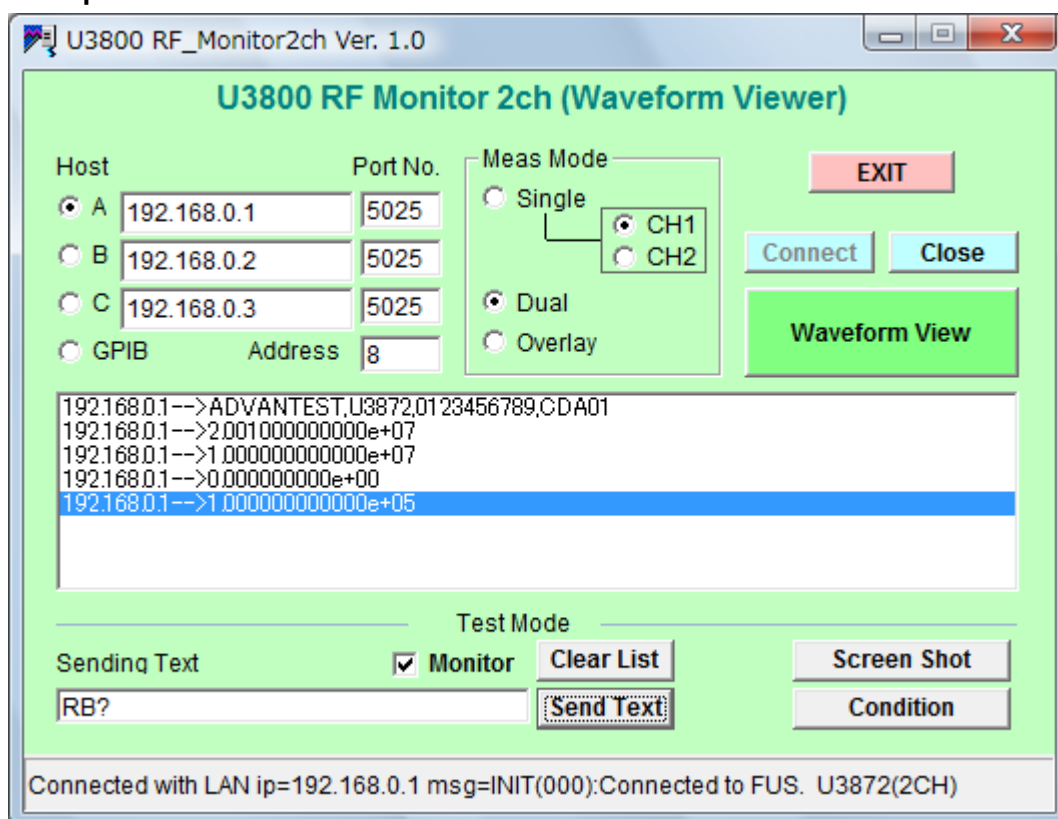


Operation Example:　　　*IDN?

CF?

SP?

RL?

RB? are sent sequentially)

# Reference:   Setting and connection method of IP address

## (1) IP address setting of SA.

- SYSTEM -> Config. -> Remote Control -> LAN IP Address
- The following example is direct connection (SA and PC).
- Inquire IP address of the network administrator when using fixed IP address on LAN.
- When using automatic connection (DHCP), the IP address is displayed.
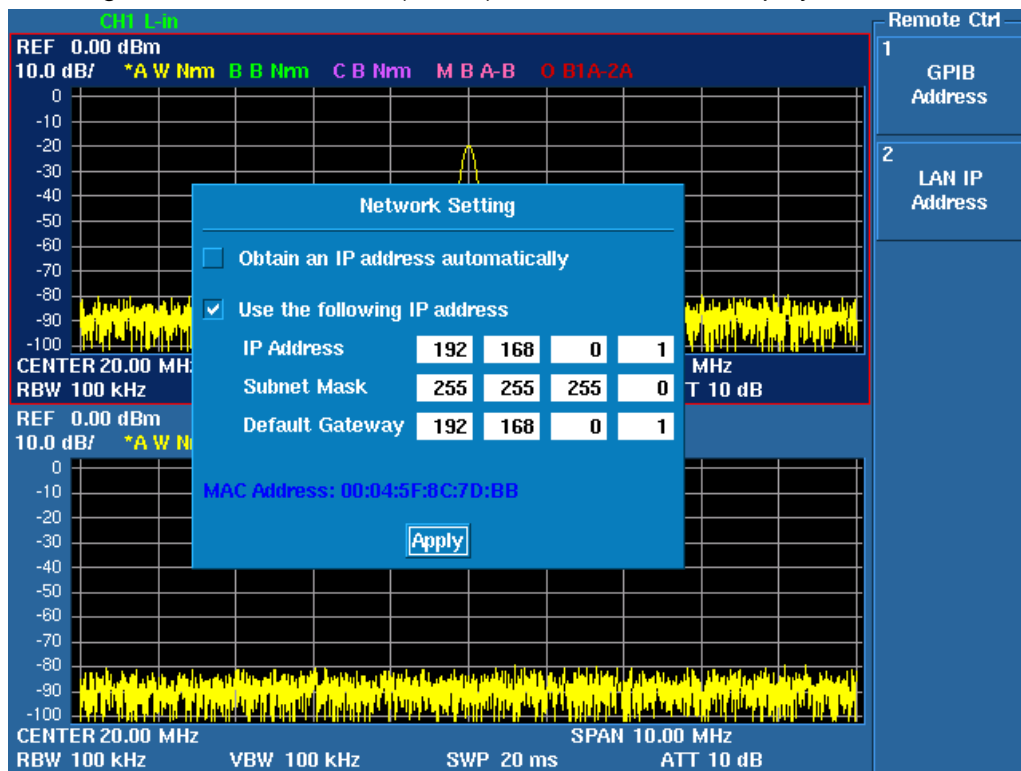


## (2)  Set IP address of the personal computer. (direct connection SA and PC)
## (When both SA and PC are connected with LAN (WAN), it is unnecessary)

- XP/ Win2000 (Please see next page.)

       My network

       Right-click - Property

       Local area connection -Right-click - Property

       Internet Protocol (TCP/IP) -Property

- Set Internet Protocol address. (Make it to an address different from SA U3800)

       Example 192.168.1.2: Shut the menu with OK and OK after it sets it.

## (3)  Connect LAN cable. (Please connect after IP address set up.)

       *caution): Direct connection SA and PC: using cross cable.

**Local Area Connection Properties** ? ✕

General | Authentication | Advanced

Connect using:

🖳 Intel(R) PRO/1000 MT Mobile Conne    [ Configure... ]

This connection uses the following items:

☑ 🖳 QoS Packet Scheduler
☑ ⦻ AEGIS Protocol (IEEE 802.1x) v2.3.1.7
☑ ⦻ Internet Protocol (TCP/IP)

[ Install... ]   [ Uninstall ]   [ Properties ]

Description
Transmission Control Protocol/Internet Protocol. The default
wide area network protocol that provides communication
across diverse interconnected networks.

☑ Show icon in notification area when connected
☑ Notify me when this connection has limited or no connectivity

[ OK ]   [ Cancel ]

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**Internet Protocol (TCP/IP) Properties** ? ✕

General

You can get IP settings assigned automatically if your network supports
this capability. Otherwise, you need to ask your network administrator for
the appropriate IP settings.

○ Obtain an IP address automatically
● Use the following IP address:

IP address:          192 . 168 . 1 . 2
Subnet mask:         255 . 255 . 255 . 0
Default gateway:     192 . 168 . 1 . 2

○ Obtain DNS server address automatically
● Use the following DNS server addresses:

Preferred DNS server:    .    .
Alternate DNS server:    .    .

[ Advanced... ]

[ OK ]   [ Cancel ]