
ADVANTEST®

ADVANTEST CORPORATION

ANT_Chk Application Software Operation Manual

Applicable measuring instruments:
R3755A/R3760

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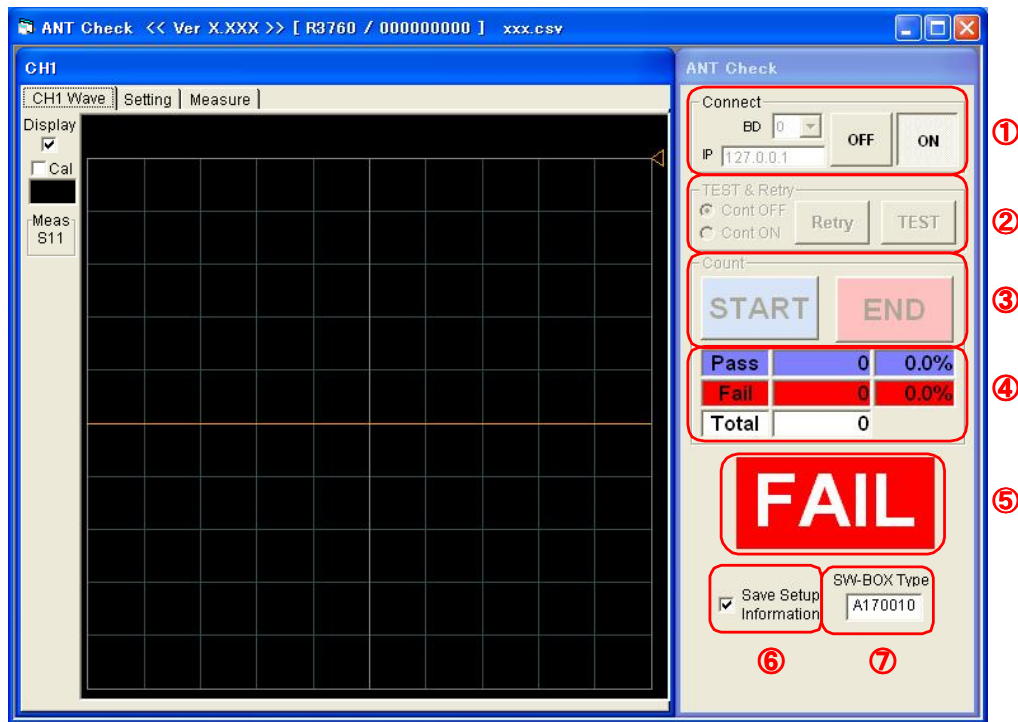
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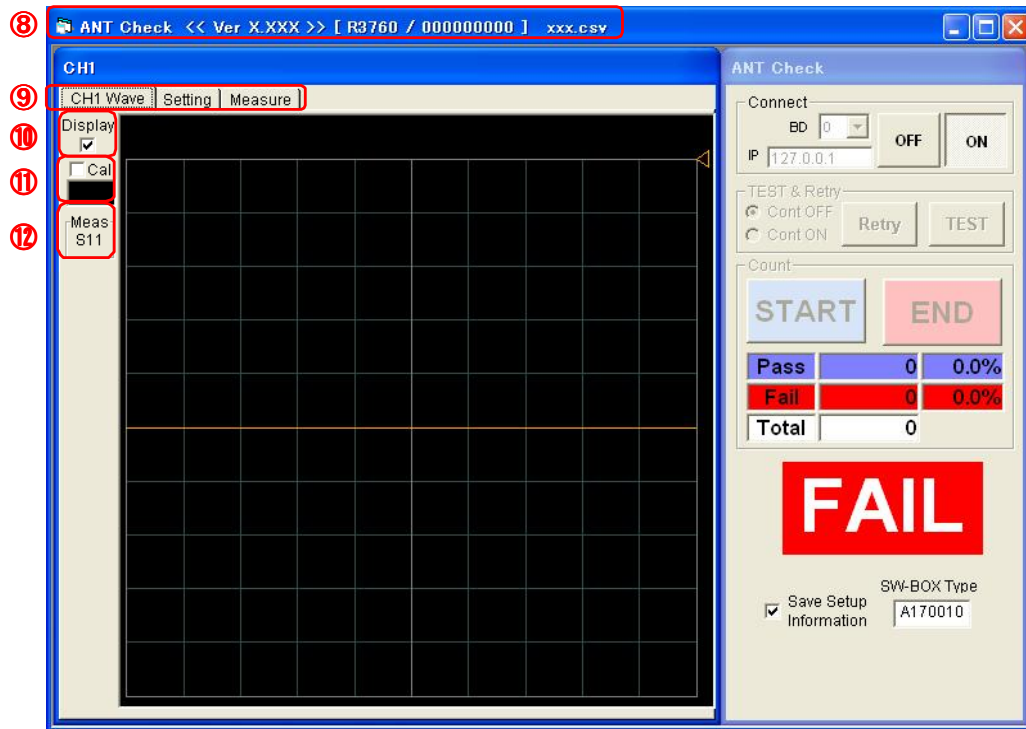
1. ANT_Chk Application Software

The ANT_Chk application software is Windows application software (ANT_Chk) whose purpose is to use the R3755A or R3760 independently, or to use the R3760 with A170010 (DPDT) SW-BOX.

2. ANT_Chk Application Software Window Descriptions



- ① Connect The field where a board number to be connected and host
PC IP address or PC name are set.
- ② TEST & Retry
Cont OFF : Continuous sweep
Cont ON : Continuous sweep
[Retry] : Retest
[TEST] : Test
- ③ START, END
Lot start/end buttons
[START] : Lot start button
[END] : Lot end button
- ④ Pass, Fail, Total
Test result count display
[Pass] : Total Pass count display
[Fail] : Total Fail count display
[Total] : Total measurement count display
- ⑤ Test result display
Test result display
Test result display of [TEST] or [Retry]
- ⑥ Save Setup Information
When the checkbox is selected, measurement conditions are saved at the beginning of the file when test results are saved with the [END] button.
- ⑦ SW-BOX Type
The connected SW-BOX Type is displayed.



⑧ Title bar Application name <<version>> [model name / serial] CSV file name

⑨ CHx Wave/Setting/Measure

By tabs, waveform display, measurement conditions, and waveform type setting status can be checked.

[CHx Wave] : Measured-waveform display

[Setting] : The frequency setting can be checked, and calibration data can be obtained.

[Measure] : The measured-waveform type can be checked, and a scale can be set.

⑩ Display

Whether to display the measured waveform can be selected.

⑪ Cal Checkbox : Calibration status ON/OFF

[] : Calibration OFF

[Cor] : Calibration ON (normal status)

[C?] : Calibration ON (interpolation status)

[C!] : Calibration ON (extrapolation status)

⑫ Waveform type display

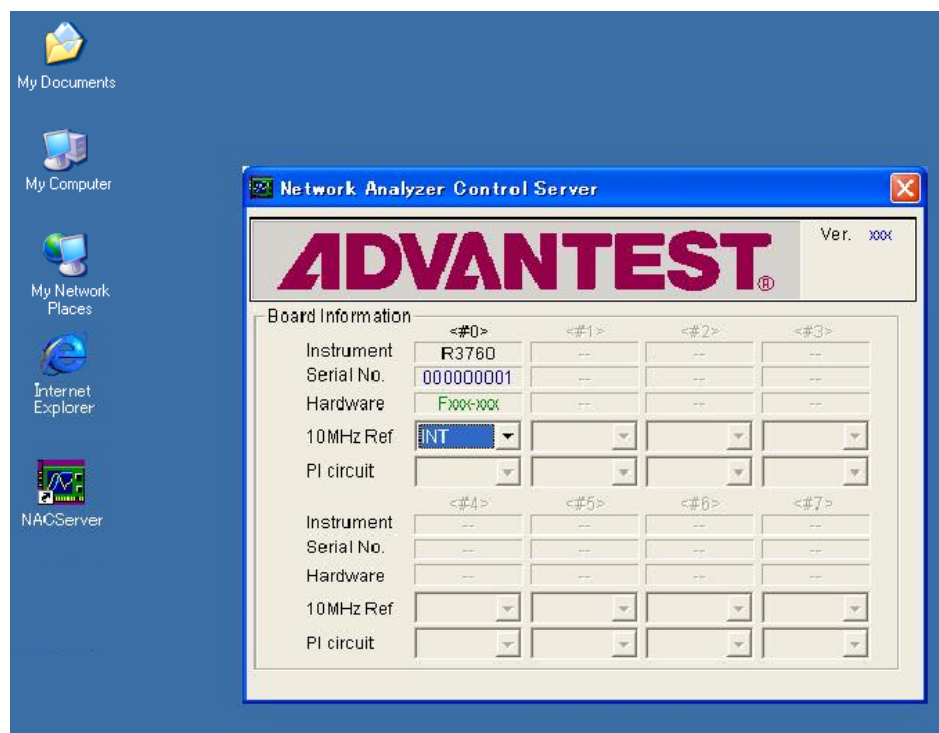
3. Methods for Starting and Operating ANT_Chk Application Software

This chapter describes the start and measurement procedures for ANT_Chk application software.

- ※ Before turning on the PC power, connect SW-BOX(A170010) to the R3760 with a cable.
Never disconnect the cable while the power is on.

3.1. Starting NACserver.exe

The shortcut to NACserver.exe is on the desktop. Execute this shortcut.

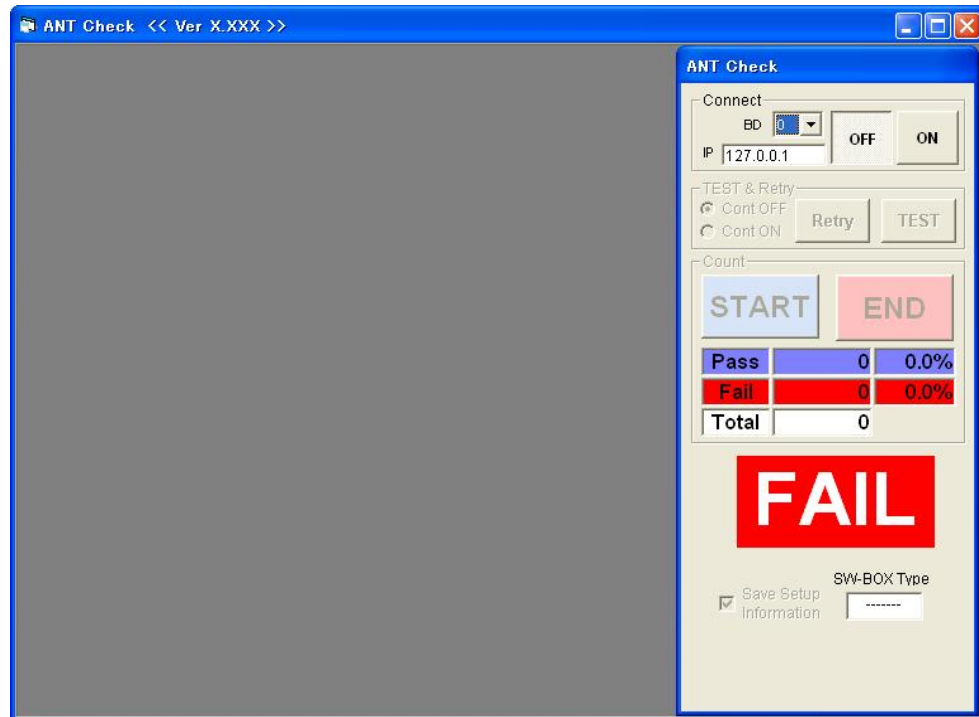


3.2. Starting ANT_Chk.exe

After NACserver.exe is activated, start ANT_Chk.exe.

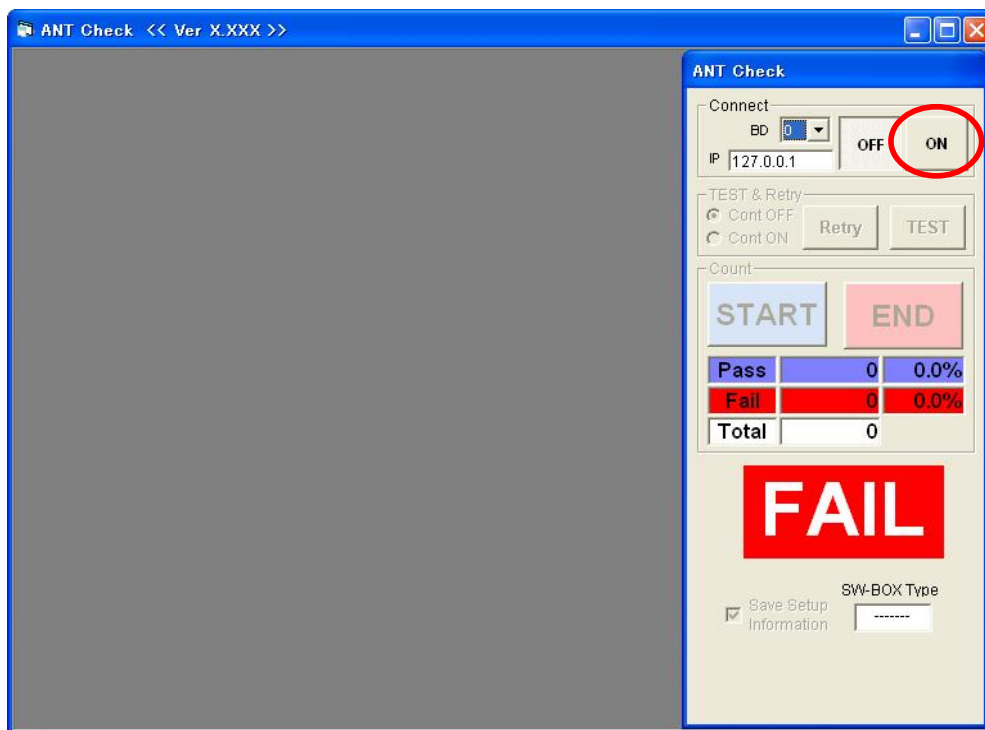
As well as NACserver.exe, the shortcut to ANT_Chk is also on the desktop.

Execute this shortcut. After execution, the following window is displayed

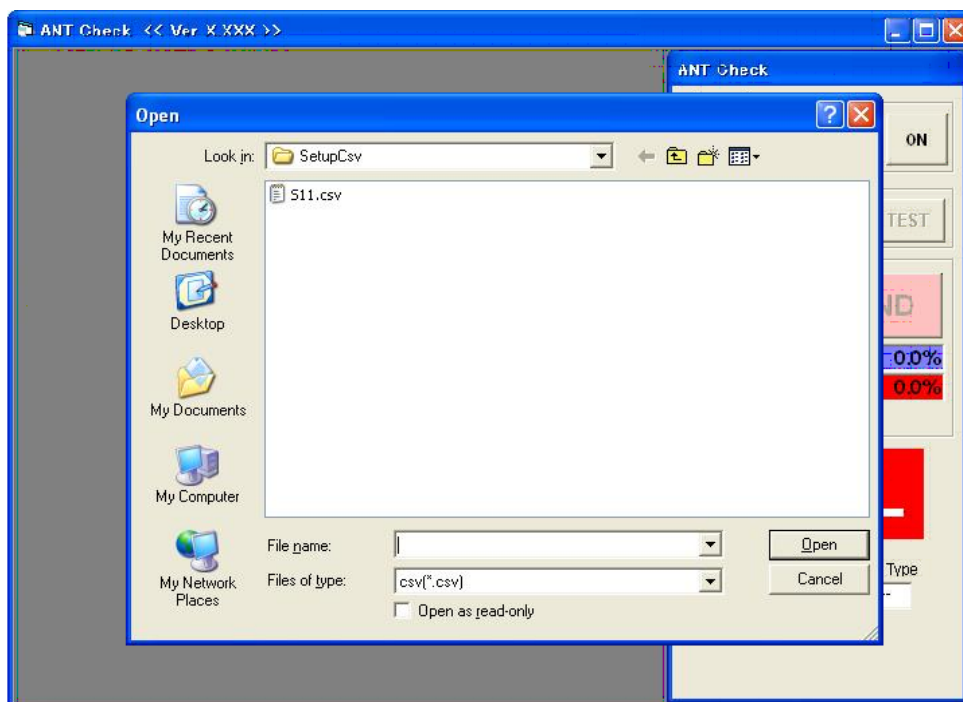


3.3. Connecting ANT_Chk Application to R3755A or R3760

With the [ON] button in the Connect field, connect to the R3755A or R3760.

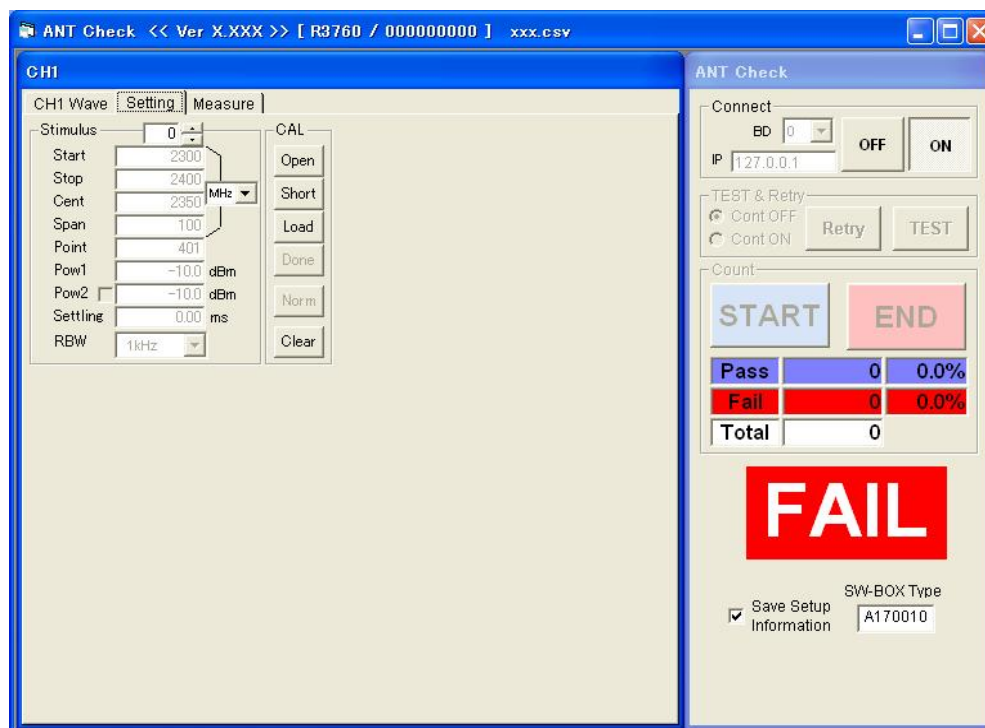
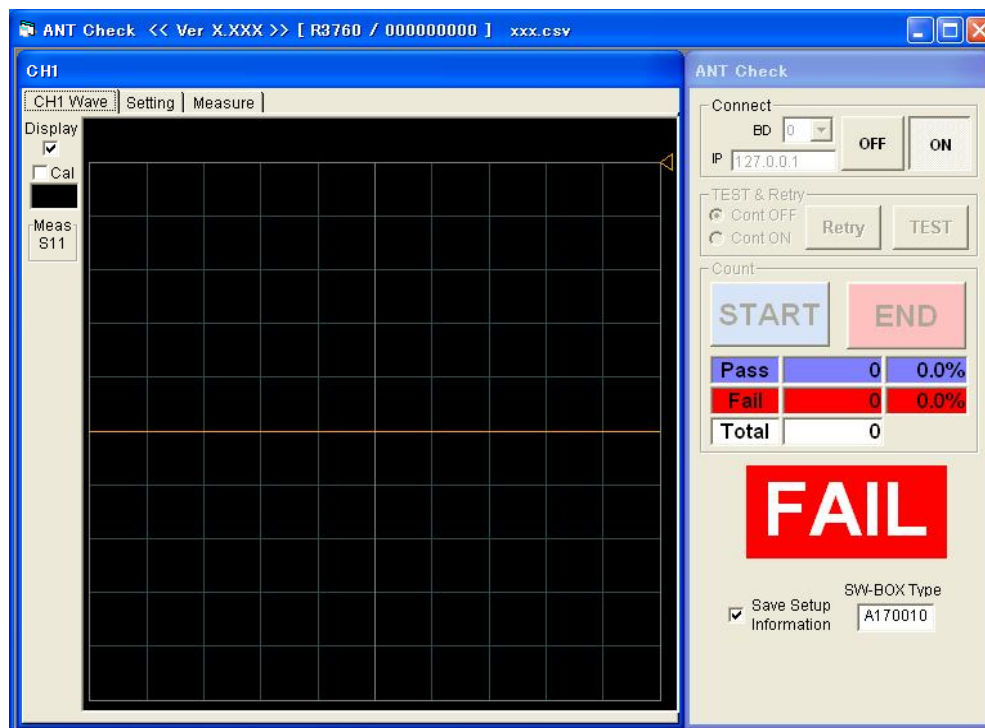


When the connection is complete, the following Excel file selection window, different for each device type, is displayed

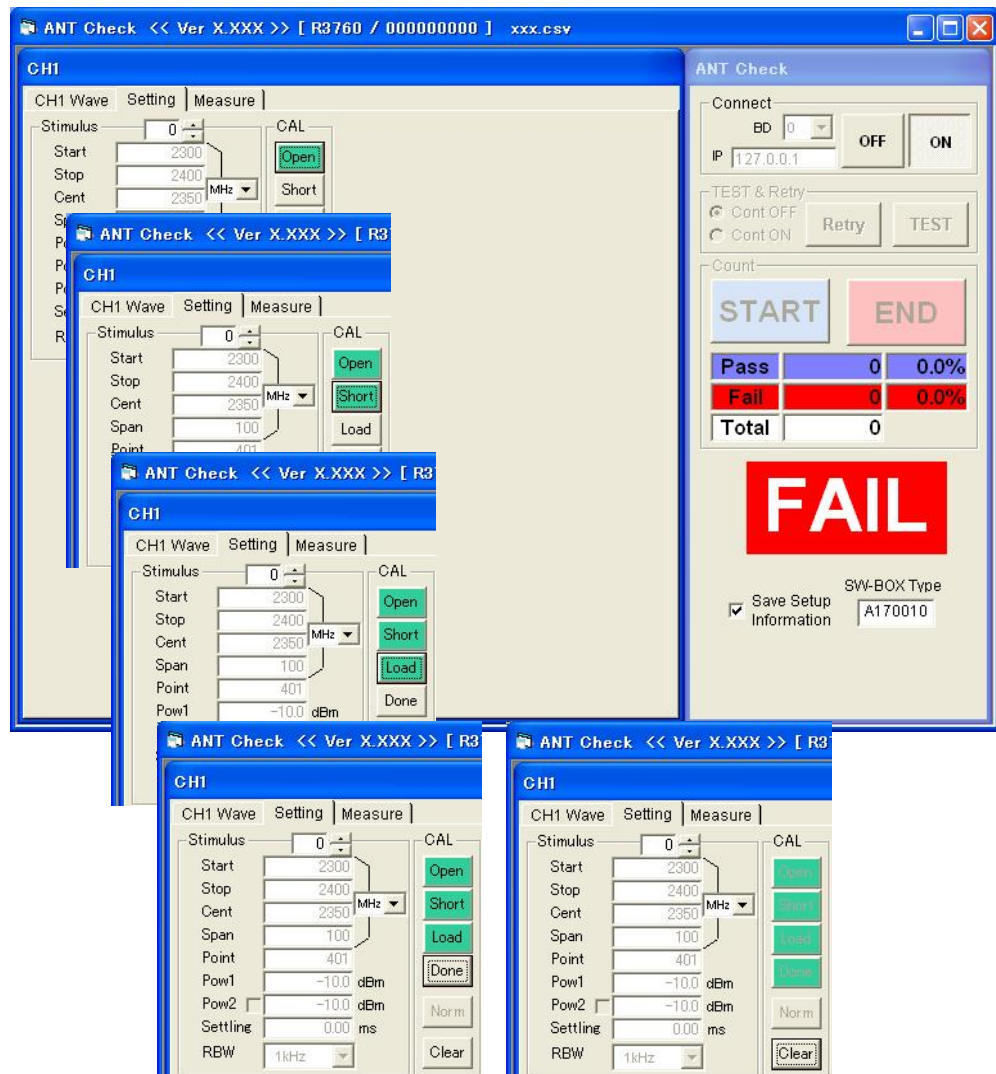


3.4. Calibration

The measurement conditions are read from an Excel (CSV) file, and those including measurement frequency conditions are set for the R3755A or R3760. For the first measurement, calibration is necessary. Select the Setting tab.

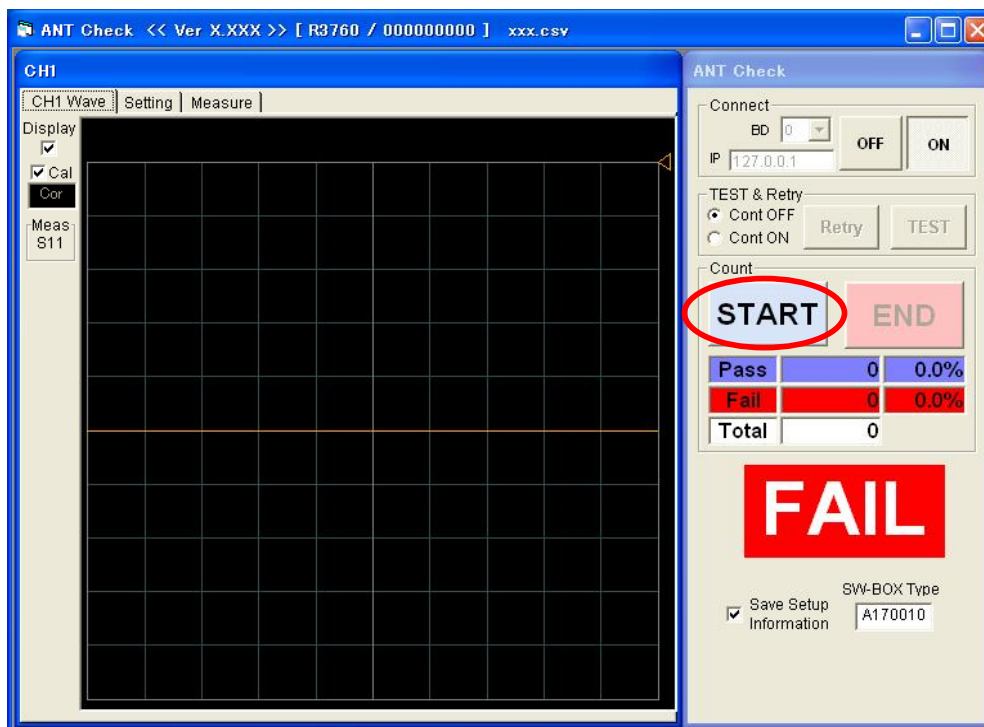


For Cal Method, 1Port Cal or Normalize can be set depending on the specified Excel file (CSV).

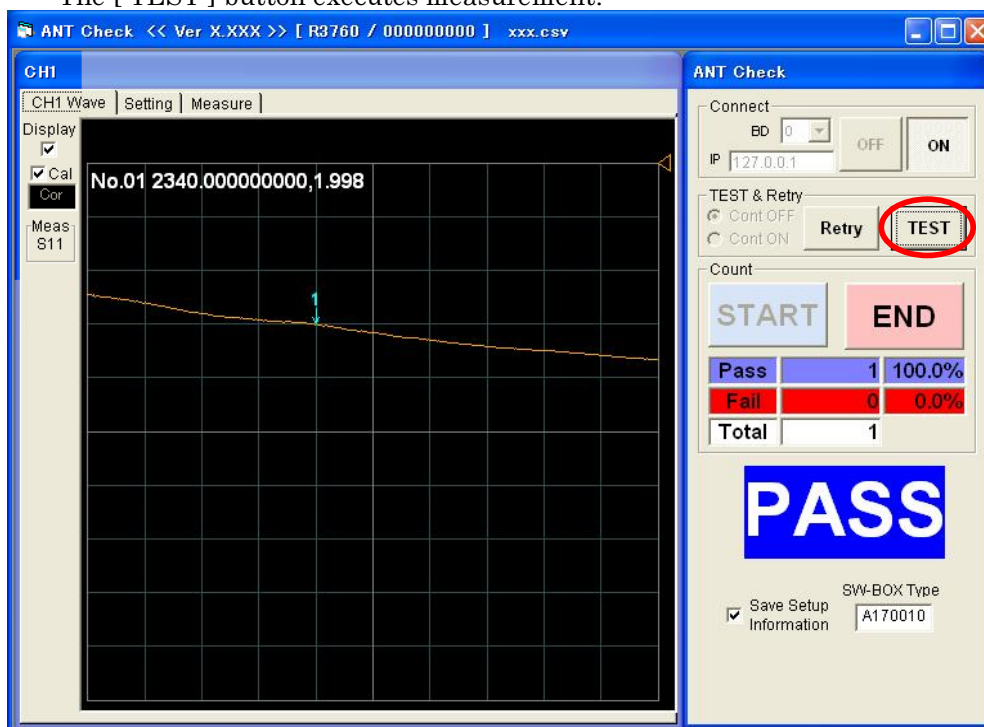


3.5. Starting Test

By pressing the [START] button, the [TEST] and [Retry] buttons are enabled.

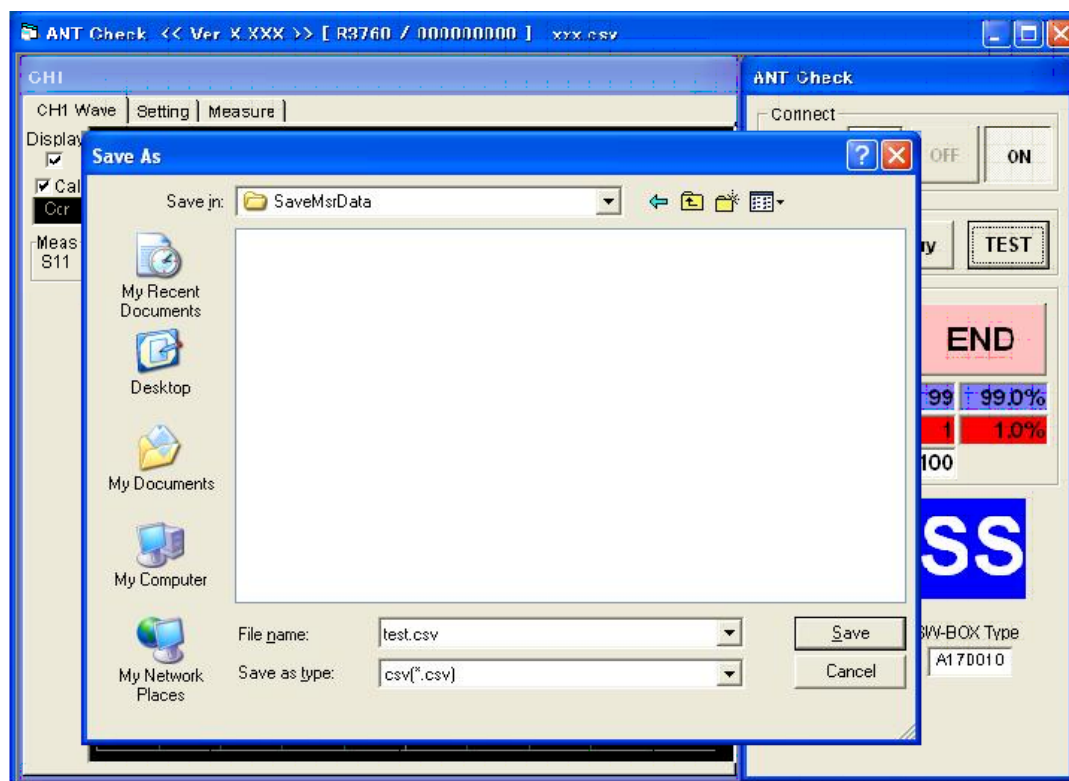
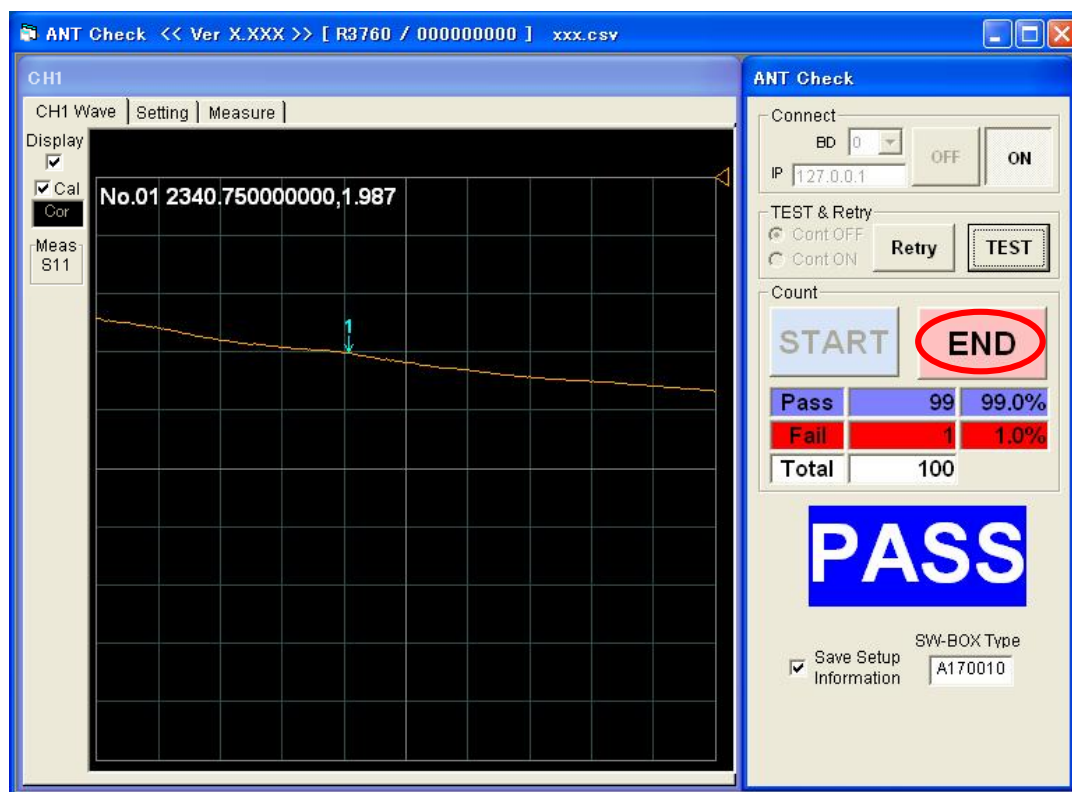


The [TEST] button executes measurement.



The [Retry] button executes a retest.

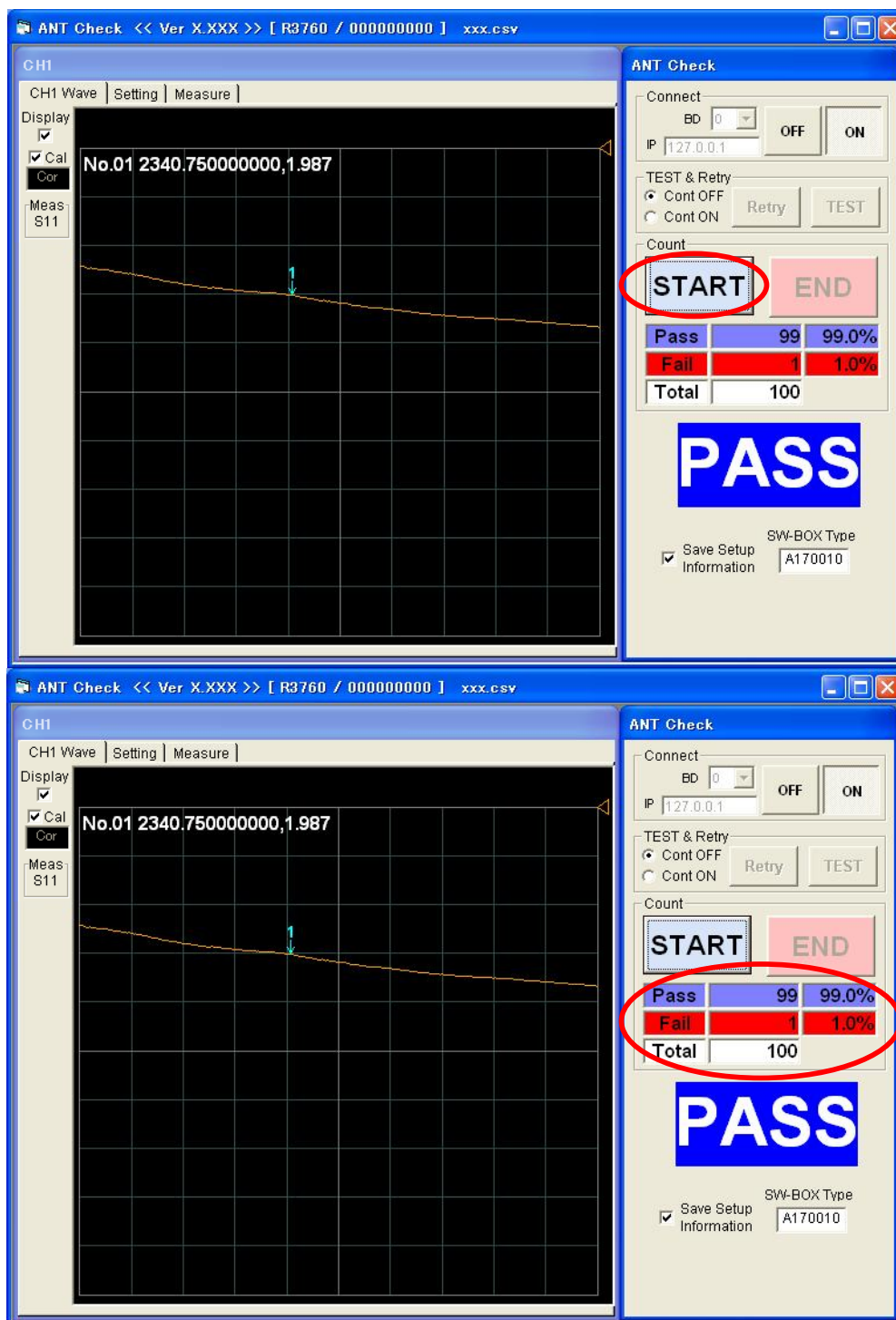
The [END] button saves the measured results to a file.



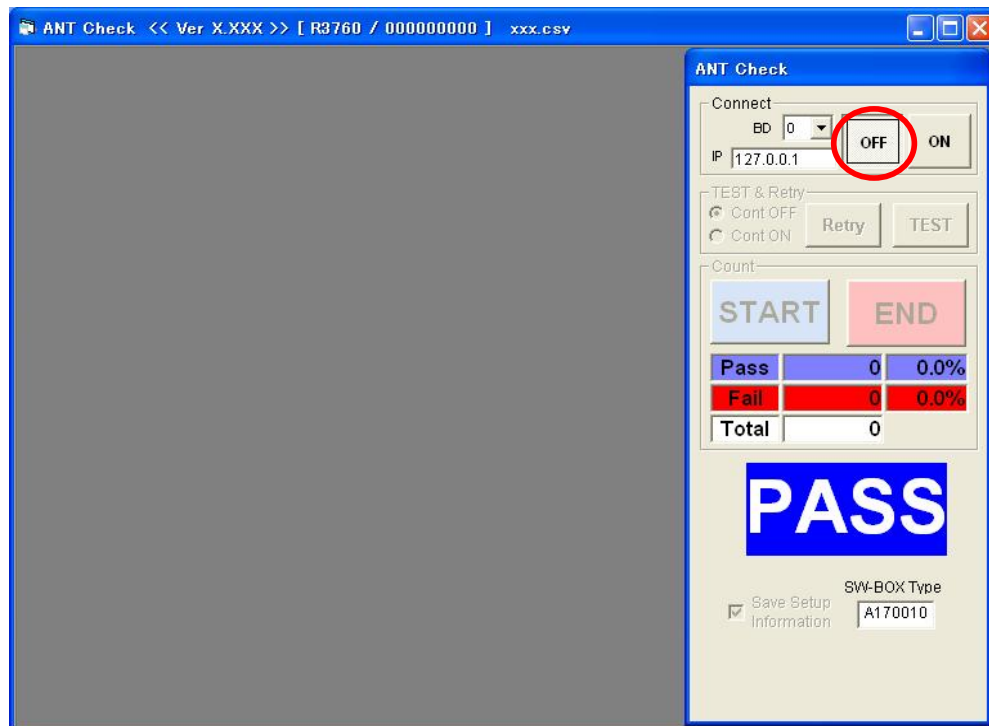
To measure the next lot of the same device type after the measured results are saved to a file, re-start measurement with the [START] button.

By pressing the [START] button, the count values are cleared.

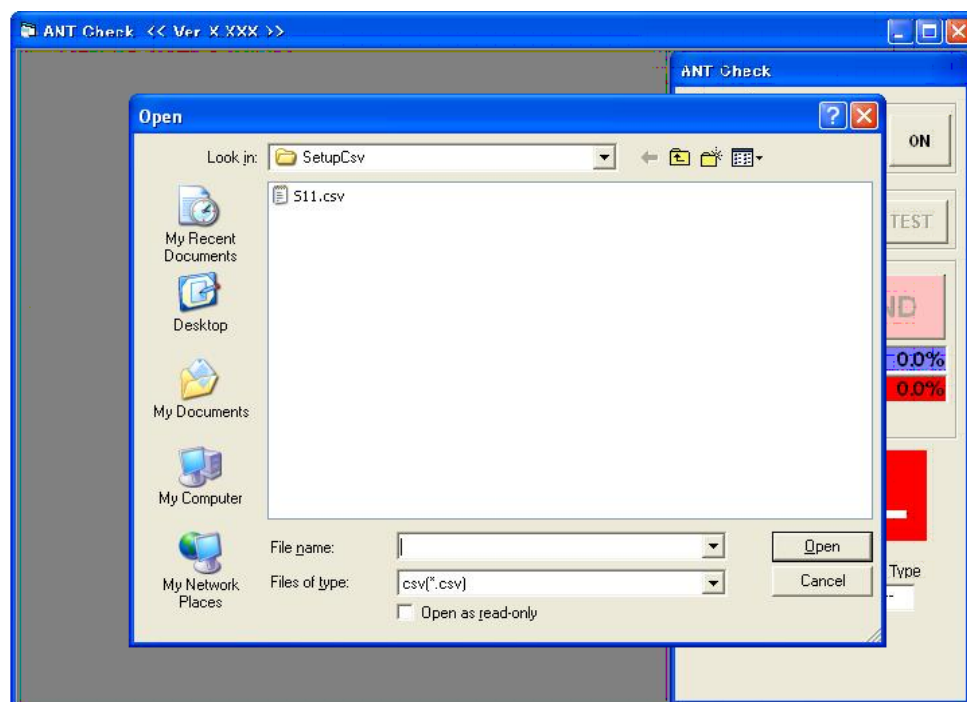
To switch to a different device type, press the [OFF] button in the Connect field and select a file from the Excel file selection window for device type with the [ON] button.



End with the [OFF] button.

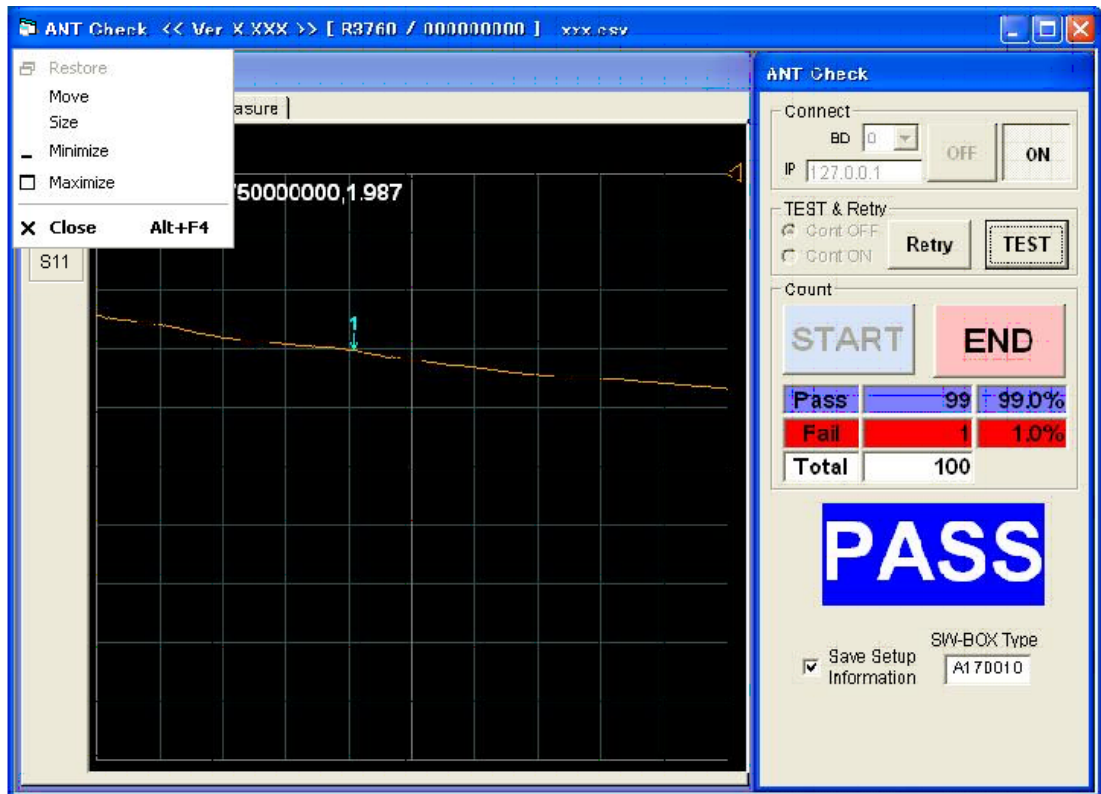


With the [ON] button, re-select an Excel file for a different device type from the file selection window.



3.6. Closing ANT_Chk

To terminate ANT_Chk, press the [X] button or select "X Close (C) Alt+F4" from the title menu.



4. Measurement Condition Setting Format of Excel File

The following are example descriptions in an Excel file.

Actually, ANT_Chk sets measurement conditions by reading a file saved in CSV file format.

Sample.xls

	A	B	C	D	E	F	G	H	I	J	K	L	M	N
1	Application Name	ANT_Chk												
2	DSV Sheet Revision	2												
3	Product Name	R3755A												
4	CAL Data File Save/Recall	ON												
5	CAL Type (Don't Care / User Define / 3.5mm / 3.5mm(R&S))	Don't Care												
6	User Cal Kit Connect Type (Female)	Female												
7	Standard Cal Kit OPEN Item Title	OPEN Imp Rs [ohm]	OPEN Imp Ls [H]	OPEN Cap Cp [F]										
8	OPEN Calibration data	1 000000000	0	0										
9	Standard Cal Kit SHORT Item Title	SHORT Imp Rs [ohm]	SHORT Imp Ls [H]	SHORT Cap Cp [F]										
10	SHORT Calibration data	0	0	0										
11	Standard Cal Kit LOAD Item Title	LOAD Imp Rs [ohm]	LOAD Imp Ls [H]	LOAD Cap Cp [F]										
12	LOAD Calibration data	50	0	0										
13	Number Of Channel	2												
14	Channel Title	CH1												
15	Waveform display	ON												
16	Measurement	A/R												
17	CAL Method (Norm / 1 Port)	Norm												
18	Setting of each port	PORT1												
19	Port Extension (psec)	0												
20	Port Impedance (ohm)	50												
21	Number of Freq Segment	1												
22	Segment Number	START[MHz]	STOP[MHz]	POINT	START POWER[dBm]	STOP POWER[dBm]	RBW[KHz]	SettingTime[msec]						
23	1	100	200	11	0	0	1	0						
24	Number of Trace	1												
25	Trace Number	FORMAT	/DIV	RefVAL	RefPos									
26	1	LOGMAG	10	0	100									
27	Number of Measurement	5												
28	Measurement Number	TITLE	Judge Valid(ON)/Invalid	Trace Number	Meas. Command	START[MHz]	STOP[MHz]	Limit Disp	LowerLimit C	LowerLimit	UpperLimit C	UpperLimit	Lw Freq[MHz]	Up Freq[MHz]
29	1	100MHz	ON	1	VAL	100	100	ON	ON	-15	ON	20	0	0
30	2	120.33MHz	ON	1	VAL	120.33	120.33	ON	ON	-15	ON	20	0	0
31	3	150M	ON	1	VAL	150	150	ON	ON	-15	ON	20	0	0
32	4	193.89MHz	ON	1	VAL	193.89	193.89	ON	ON	-15	ON	20	0	0
33	5	200MHz	ON	1	VAL	200	200	ON	ON	-15	ON	20	0	0

※ R3755A example setting

Sample.xls														
	A	B	C	D	E	F	G	H	I	J	K	L	M	N
1	Application Name	ANT_Chk												
2	CSV Sheet Revision	2												
3	Product Name	R3760												
4	CAL Data File Save/Recall	ON												
5	CAL Type (Don't Care / User Define / 3.5mm / 3.5mm(R&S))	Don't Care												
6	User Cal Kit Connect Type (Female)	Female												
7	User Cal Kit OPEN Item Title	OPEN Z0[ohm]	OPEN Delay[ps]	OPEN Loss[G ohm/s]	OPEN C0[e-15] F	OPEN C1[e-27] F/H	OPEN C2[e-]	OPEN C3[e-45] F/Hz3						
8	OPEN Calibration data	50	0	0	0	0	0	0						
9	User Cal Kit SHORT Item Title	SHORT Z0[ohm]	SHORT Delay[ps]	SHORT Loss[G ohm/s]	SHORT Loss[G ohm/]	SHORT L1[e-24] H/	SHORT L2[e]	SHORT L3[e-42] H/Hz3						
10	SHORT Calibration data	50	0	0	0	0	0	0						
11	User Cal Kit LOAD Item Title	LOAD Z0[ohm]	LOAD Delay[ps]	LOAD Loss	LOAD Resistance [ohm]									
12	LOAD Calibration data	50	0	0	50									
13	Number Of Channel	1												
14	Channel Title	CH1												
15	Wave form display	ON												
16	Measurement	S11												
17	CAL Method (Norm / 1 Port)	1 Port												
18	Setting of each port	PORT1												
19	Port Extension (psec)	0												
20	Port Impedance (ohm)	50												
21	Number of Freq Segment	1												
22	Segment Number	START[MHz]	STOP[MHz]	POINT	START POWER[dBm]	STOP POWER[dBm]	REBW[KHz]	SettlingTime[msec]						
23	1	2300	2400	401	-10	-10	1	0						
24	Number of Trace	1												
25	Trace Number	FORMAT	/DIV	RefVAL	RefPos									
26	1	SWR	1	5	100									
27	Number of Measurement	1												
28	Measurement Number	TITLE	Judge Valid(ON)/Invalid(OFF)	Trace Number	Meas. Command	START[MHz]	STOP[MHz]	Limit Disp	LowerLimit Check	LowerLimit	UpperLimit Check	UpperLimit	Lw Freq[MHz]	Up Freq[MHz]
29	1	S11 VSWR	ON	1	MAX	2340	2370	ON	ON	0	ON	2	2340	2370

※ R3760 example settings

4.1. Setting Items (R3755A)

Sample.xls				
	A	B	C	D
1	Application Name	ANT_Chk		
2	CSV Sheet Revision	2		
3	Product Name	R3755A		
4	CAL Data File Save/Recall	ON		
5	CAL Type (Don't Care / User Define / 3.5mm / 3.5mm(R&S))	Don't Care		
6	User Cal Kit Connect Type (Female)	Female		
7	Standard Cal Kit OPEN Item Title	OPEN Imp Rs [ohm]	OPEN Imp Ls [H]	OPEN Cap Cp [F]
8	OPEN Calibration data	1 000000000	0	0
9	Standard Cal Kit SHORT Item Title	SHORT Imp Rs [ohm]	SHORT Imp Ls [H]	SHORT Cap Cp [F]
10	SHORT Calibration data	0	0	0
11	Standard Cal Kit LOAD Item Title	LOAD Imp Rs [ohm]	LOAD Imp Ls [H]	LOAD Cap Cp [F]
12	LOAD Calibration data	50	0	0
13	Number Of Channel	2		

- (1) Application Name
ANT_Chk : Application software identification name.
- (2) CSV Sheet Revision
1 : CSV revision
- (3) Product Name
R3755A : Board network analyzer to be connected
- (4) CAL Data File Save/Recall
ON : Uses the calibration data Save/Recall function.
OFF : Does not use the calibration data Save/Recall function.
- (5) CAL Type (Don't Care / User Define / 3.5mm / 3.5mm(R&S))
Don't Care : Specifies not to select a calibration type.
User Define : Specifies a user-specific calibration type. (The 6th, 8th, 10th, and 12th lines must also be set.)

- 3.5mm : Specifies 3.5mm for the calibration type.
A calibration value of the MAURY-produced CAL Kit (Model9617F3) is used.
- 3.5mm(R&S) : Specifies 3.5mm (R&S) for the calibration type.
A calibration value of the ROHDE&SCHWARZ-produced CAL Kit (ZV-Z132 MODEL 03) is used.
- (6) User Cal Kit Connect Type (Female)
Female : Only this type can be specified.
- (7) User Cal Kit OPEN Item Title
Setting title.
- (8) OPEN Calibration data
When CAL Type is User Define, set an OPEN correction value for this setting item.
- (9) User Cal Kit SHORT Item Title
Setting title.
- (10) SHORT Calibration data
When CAL Type is User Define, set a SHORT correction value for this setting item.
- (11) User Cal Kit LOAD Item Title
Setting title.
- (12) LOAD Calibration data
When CAL Type is User Define, set a LOAD correction value for this setting item.
- (13) Number Of Channel
Specifies the total number of CHs to be set.

4.2. Setting Items (R3760)

(14)

Sample.xls

	A	B	C	D	E	F	G	H
1	Application Name	ANT_Chk						
2	CSV Sheet Revision	2						
3	Product Name	R3760						
4	CAL Data File Save/Recall	ON						
5	CAL Type (Don't Care / User Define / 3.5mm / 3.5mm(R&S))	Don't Care						
6	User Cal Kit Connect Type (Female)	Female						
7	User Cal Kit OPEN Item Title	OPEN Z0[ohm]	OPEN Delay[ps]	OPEN Loss[G ohm/s]	OPEN C0[e-15] F	OPEN C1[e-27] F/Hz	OPEN C2[e-36] F/Hz2	OPEN C3[e-45] F/Hz3
8	OPEN Calibration data	50	0	0	0	0	0	0
9	User Cal Kit SHORT Item Title	SHORT Z0[ohm]	SHORT Delay[ps]	SHORT Loss[G ohm/s]	SHORT Loss[G ohm/s]	SHORT L1[e-24] H/Hz	SHORT L2[e-33] H/Hz2	SHORT L3[e-42] H/Hz3
10	SHORT Calibration data	50	0	0	0	0	0	0
11	User Cal Kit LOAD Item Title	LOAD Z0[ohm]	LOAD Delay[ps]	LOAD Loss	LOAD Resistance [ohm]			
12	LOAD Calibration data	50	0	0	50			
13	Number OfChannel	1						

- (1) Application Name
ANT_Chk : Application software identification name.
- (2) CSV Sheet Revision
1 : CSV revision
- (3) Product Name
R3760 : Board network analyzer to be connected
- (4) CAL Data File Save/Recall
ON : Uses the calibration data Save/Recall function.
OFF : Does not use the calibration data Save/Recall function.

- (5) CAL Type (Don't Care / User Define / 3.5mm / 3.5mm(R&S))
 - Don't Care : Specifies not to select a calibration type.
 - User Define : Specifies a user-specific calibration type. (The 6th, 8th, 10th, and 12th lines must also be set.)
 - 3.5mm : Specifies 3.5mm for the calibration type.
A calibration value of the MAURY-produced CAL Kit (Model9617F3) is used.
 - 3.5mm(R&S) : Specifies 3.5mm (R&S) for the calibration type.
A calibration value of the ROHDE&SCHWARZ-produced CAL Kit (ZV-Z132 MODEL 03) is used.
- (6) User Cal Kit Connect Type (Female)
 - Female : Only this type can be specified.
- (7) User Cal Kit OPEN Item Title
 - Setting title.
- (8) OPEN Calibration data
 - When CAL Type is User Define, set an OPEN correction value for this setting item.
- (9) User Cal Kit SHORT Item Title
 - Setting title.
- (10) SHORT Calibration data
 - When CAL Type is User Define, set a SHORT correction value for this setting item.
- (11) User Cal Kit LOAD Item Title
 - Setting title.
- (12) LOAD Calibration data
 - When CAL Type is User Define, set a LOAD correction value for this setting item.
- (13) Number Of Channel
 - Specifies the total number of CHs to be set.

4.3. Common Setting Items (R3755A and R3760)

14	Channel Title	CH1												
15	Waveform display	ON												
16	Measurement	S11												
17	CAL Method (Norm / 1 Port)	1 Port												
18	Setting of each port	PORT1												
19	Port Extension (psec)	0												
20	Port Impedance (ohm)	50												
21	Number of Freq.Segment	1												
22	Segment Number	START[MHz]	STOP[MHz]	POINT	START POWER[dBm]	STOP POWER[dBm]	RBW[KHz]	SettlingTime[msec]						
23	1	2300	2400	401	-10	-10	1	0						
24	Number of Trace	1												
25	Trace Number	FORMAT	/DIV	RefVAL	RefPos									
26	1	SWR		1	5	100								
27	Number of Measurement	1												
28	Measurement Number	TITLE	Judge Valid	Trace Number	Mess. Command	START[MHz]	STOP[MHz]	Limit Disp	LowerLimit Check	LowerLimit	UpperLimit Check	UpperLimit	Lw Freq[MHz]	Up Freq[MHz]
29	1	S11 VSWR	ON	1	MAX	2340	2370	ON	ON	0	ON	2	2340	2370

(14) Channel Title

CH title

(15) Waveform display

ON : Displays waveforms.

OFF : Does not display a waveform.

(16) Measurement

R3755A : A/R

R3760 : S11, S21

To use the R3760 with A170010, the following can be specified.

S11 : S11 measurement for A170010.

S21 : S21 measurement for A170010.

S12 : S12 measurement for A170010.

S22 : S22 measurement for A170010.

(17) CAL Method (Norm / 1 Port)

Norm : Sets Normalize for the calibration method.

1 Port : Sets 1Port Full Cal for the calibration method.

- (18) Setting of each port
Setting of each port title.
- (19) Port Extension (psec)
Sets the electric length for port 1 by time. (The time unit is "setting value x 10E12".)
- (20) Port Impedance (ohm)
Sets a port impedance value.
- (21) Number of Freq.Segment
Sets the number of frequency settings for which segment sweep is performed.
- (22) Segment Number
Segment sweep title.
- (23) Number
Setting items specified for segment sweep.
Setting number, start frequency (MHz), stop frequency (MHz), number of measurement points, output power (start), output power (stop), RBW (KHz), and settling time (msec).
The preceding settings are repeated the number of times specified for "(18) Number of Freq.Segment."
- (24) Number of Trace
Number of traces to be displayed.
- (25) Trace Number
Trace setting title
- (26) Number
Trace setting items<
Trace format (LOGMAG,SWR), scale (DIV), scale (Ref), and scale (Ref Position)
The preceding settings are repeated the number of times specified for "(21) Number of Trace."
- (27) Number of Measurement
Number of measurement points.

(28) Number

Sets conditions for measurement points.

Item name, total judgment enable/disable (ON/OFF), trace number, data acquisition method (MAX, MIN, VAL, PWRVAL), data range setting (start), data range setting (stop), limit display setting (ON/OFF), Low limit check enable/disable (ON/OFF), Low limit value, Up limit check enable/disable (ON/OFF), Up limit value, Lw frequency limit value (zero: no limit, other than zero: limit setting), and Up frequency limit value (zero: no limit, other than zero: limit setting)

The preceding settings are repeated the number of times specified for "(24) Number of Measurement".

5. Measurement Result Format of Excel File

The following is an example file with measurement results saved with the [END] button.

test1.csv							
	A	B	C	D	E	F	
1	Application Name	ANT_Chk					
2	CSV Sheet Revision	1					
3	Board Number	0					
4	IP Address	127.0.0.1					
5	Product Name	R3760					
6	Serial Number	0					
7	Number Of Channel	1					
8	Channel Title	CH1					
9	CAL status (Cor/C?/D?)	Cor					
10	Measurement	S11					
11	Information on format	/DIV	RefVAL	RefPos			
12	LOGMAG						
13	Number of Freq.Segment	1					
14	Segment Number	START[MHz]	STOP[MHz]	POINT	START POWER[dBm]	STOP POWER[dBm]	RBW
15	1	2.30E+03	2.40E+03	401	-1.00E+01	-1.00E+01	1
16	Number of Measurement	1					
17	Measurement Number	TITLE	Judge Valid(ON)/Invalid(OFF)	Trace Number	Meas. Command	START[MHz]	STOP[MHz]
18	1	S11 VSWR	ON	1	MAX	2.34E+03	2.34E+03
19	-----	-----	-----	-----	-----	-----	-----
20	Total Count	25					
21	Pass Count	24	96%				
22	Fail Count	1	4%				
23	-----	-----	-----	-----	-----	-----	-----
24	1	Pass	2341250000	0 2.378135			
25	2	Pass	2340250000	0 2.376271			
26	3	Pass	2341250000	0 2.379723			
27	4	Pass	2340000000	0 2.373379			
28	5	Pass	2340500000	0 2.379218			
29	6	Pass	2340000000	0 2.377834			
30	7	Pass	2340500000	0 2.379651			
31	8	Pass	2340500000	0 2.379196			
32	9	Pass	2340500000	0 2.379445			
33	10	Pass	2341250000	0 2.379508			
34	11	Pass	2340500000	0 2.376615			
35	12	Pass	2341250000	0 2.377907			
36	13	Pass	2340000000	0 2.379331			
37	14	Pass	2340500000	0 2.379353			
38	15	Fail	2340500000	0 2.391116			
39	16	Pass	2340000000	0 2.376931			
40	17	Pass	2340750000	0 2.379369			
41	18	Pass	2340500000	0 2.378688			
42	19	Pass	2341000000	0 2.374282			
43	20	Pass	2340500000	0 2.377934			
44	21	Pass	2340500000	0 2.378978			
45	22	Pass	2340250000	0 2.376417			
46	23	Pass	2341000000	0 2.377783			
47	24	Pass	2340000000	0 2.377093			
48	25	Pass	2340500000	0 2.379304			
49							

When the Save Setup Information checkbox in the main menu is selected, in this example, measurement conditions are described on the 1st to 23rd lines (variable length depending on measurement conditions). From the 24th line, measurement results are described.