

Agilent E5061B Network Analyzers

Save Trace Data VBA for E5061B Operation Manual

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1 Main window

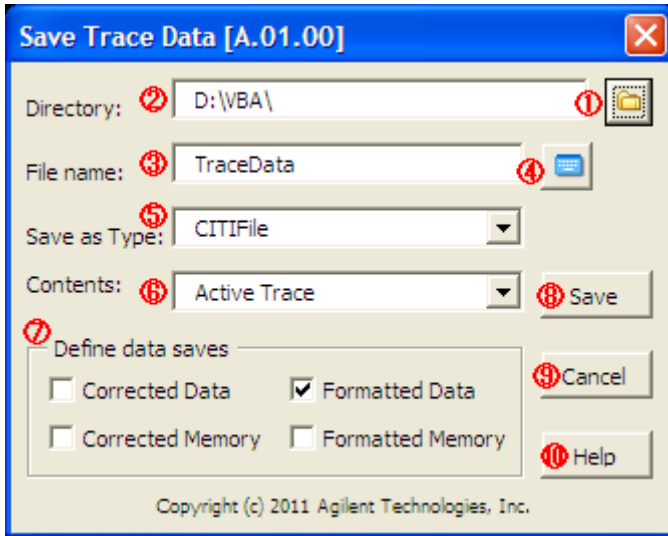


Figure 1. Main window of the Save Trace Data VBA macro

- ① Display the directory selection dialog box.
- ② Show the directory of the file to save.
- ③ Input the file name (Channel number and the file extension is automatically assigned. Refer to the following for details).
- ④ Display the screen keyboard.
- ⑤ Select the save type from the following.
 - CSV File (Refer to 2.2 CSV File)
 - MATLAB format (Refer to 2.3 MATLAB® format)
 - CITIFile (Refer to 2.4 CITIFile)
- ⑥ Select the Contents from the following.
 - Active Trace: Save the Active trace of Active channel.
 - Active Channel/All Traces: Save all traces of Active channel.
 - Displayed Channel/All Traces: Save all traces of all allocated channels.
- ⑦ Select the array type to be saved (Multiple selections are available).
 - Corrected Data: Data array that are corrected the errors. Output data is shown with the Real/Imaginary format.
 - Corrected Memory: Memory array that are corrected the errors.
 - Formatted Data: Data array that formats the corrected data. It is as same as the data shown on the screen.
 - Formatted Memory: Formatted memory array.For detail, refer to Figure 2 “Data processing flowchart”, and “Data processing” in E5061B online help.
- ⑧ Save the data. After saving is done correctly, program is ended with the beep sound.
(Note) If the same file name is in the folder, an overwrite warning is shown.
- ⑨ Cancel the operation and end the program.

⑩Display this help file.

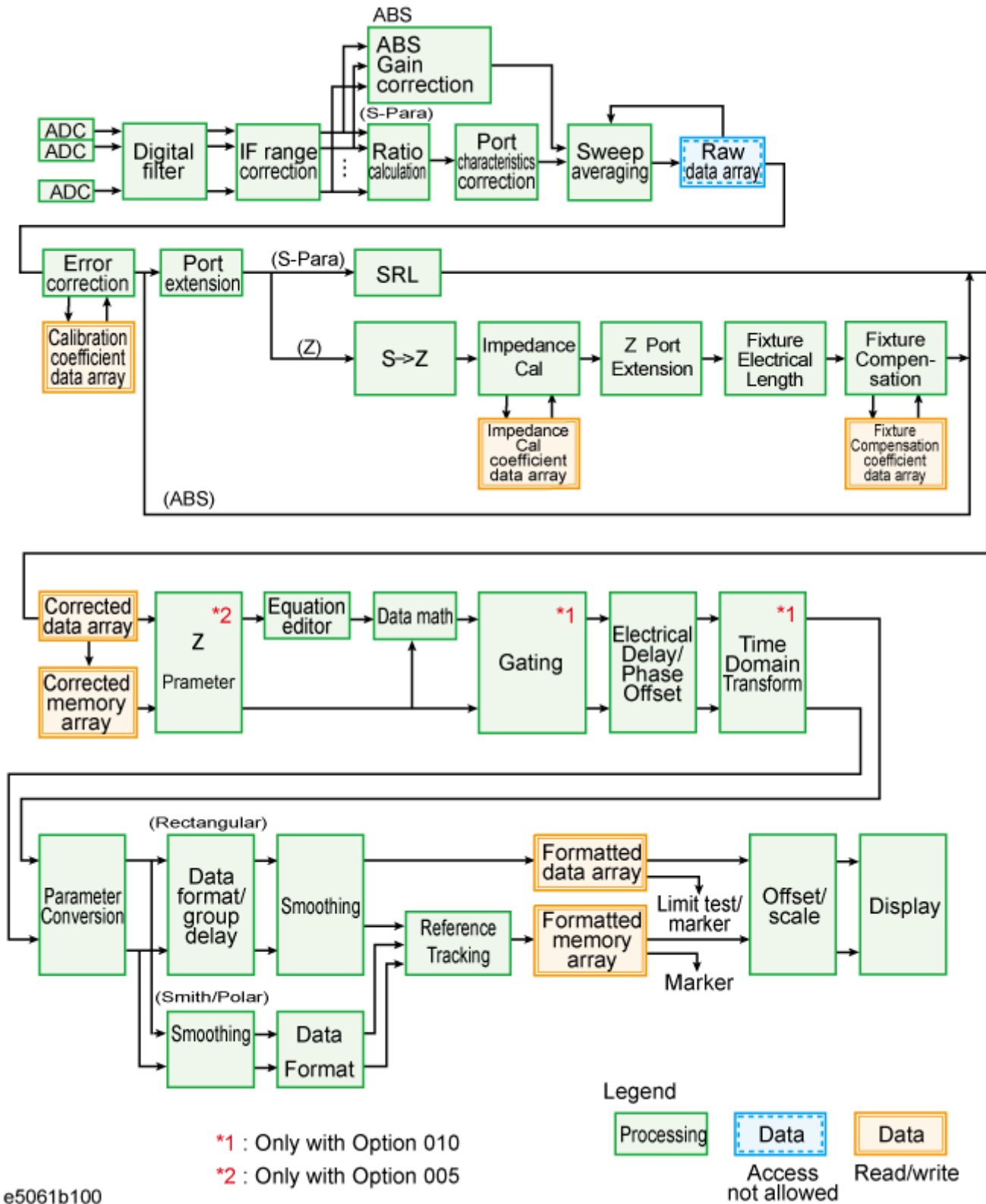


Figure 2. Data processing flowchart

2 Save type

2.1 Common

The x-axis of the measurement results are changed according to sweep type. In the case of the sweep type is “power sweep”, the x-axis is “power”. If you choose the “DC bias sweep”, the x-axis is “DC bias”. And when the fault location function is turned on, the x-axis is changed to a time domain.

2.2 CSV File

This mode saves the data as Comma Separated Value format.

If your analyzer is the E5061B-3L5, the “input impedance T(R)” and “input attenuator T(R)” settings are saved for each trace.

If your analyzer has option 005 impedance measurement function, “impedance method” setting is saved for each trace. If you save the s-parameter measurement result, the “impedance method” becomes “N/A”.

Sample case: Saved data with CSV format.

```
"E5061B MY49100053 A.02.00"      Model#  S/N      FW version
"Thursday, February 03, 2011"    Date
"10:50 AM"                       Time
"Channel",1                       Channel number
"Title Label","ON","Test"        Title label
"Power",0                          Power level [dBm]
"IFBW",30000                       IFBW [Hz]
"SweepType","LIN"                 Sweep type
"Correction","ON"                  Correction status
"Port Extension","OFF"            Port extension status
"Trace number","Parameter","Format","Correction type","Equation editor","Data math","Gating","Electrical
delay(s)","Phase offset(deg)","Fault location","Parameter conversion","Smoothing","SRL"
The following status or values are shown from the left.
"Trace1","S11","MLOG","NONE","OFF","NORM","OFF","0","0","OFF","OFF","OFF","OFF"
"Trace2","S11","MLOG","NONE","OFF","NORM","OFF","0","0","ON","OFF","OFF","OFF"
"Impedance Method","Input Impedance T","Input Impedance R","Input Attenuator T","Input Attenuator R"
"N/A","1000000","1000000","20","20"
"N/A","1000000","1000000","20","20"
Frequency,Time,Tr1_S11_Fmt_data_Re,Tr1_S11_Fmt_data_Im,Tr2_S11_Fmt_data_Re,...Note1
+1.00000000000E+005,-1.00000000000E-008,+5.99332146938E-003,+0.00000000000E+00,...Note2
+1.50995000000E+007,-9.90000000000E-009,+6.38082309703E-003,+0.00000000000E+000,...
+3.00990000000E+007,-9.80000000000E-009,-1.85860734710E-004,+0.00000000000E+000,...
+4.50985000000E+007,-9.70000000000E-009,+7.13683092446E-004,+0.00000000000E+000,...
+6.00980000000E+007,-9.60000000000E-009,+2.51042941474E-003,+0.00000000000E+000,...
```

Note 1:	Frequency	The x-axis data for frequency domain.
	Time	The x-axis data for time domain. (If you turn on the fault location function)
	Tr1	Trace number.
	S11	S parameter.
	Corr_data	Data array that are corrected the errors.
	Corr_mem	Memory array that are corrected the errors.
	Fmt_data	Formatted data array.
	Fmt_mem	Formatted memory array.
	Re	Real value in array.
	Im	Imaginary value in array.

Note2: All measured frequency (power, DC Bias or Time) and the selected array is saved.

Note3: File name is automatically assigned as follows,
Input filename + “_” + Channel number + “.csv”

Sample: TraceData_001.csv)

2.3 MATLAB® format

This mode saves the data as Comma Separated Value format with MATLAB® compatible header. “%” is added at the header.

If your analyzer is the E5061B-3L5, the “input impedance T(R)” and “input attenuator T(R)” settings are saved for each trace.

If your analyzer has option 005 impedance measurement function, “impedance method” setting is saved for each trace. If you save the s-parameter measurement result, the “impedance method” becomes “N/A”.

Sample case: Saved data with MATLAB format.

```
%E5061B MY49100149 A.02.00"
%"Thursday, February 03, 2011"
%"10:46 AM"
%"Channel",1
%"Title Label","OFF",""
%"Power",10
%"IFBW",30000
%"SweepType","LOG"
%"Correction","OFF"
%"Port Extension","OFF"
%"Trace number","Parameter","Format","Correction type","Equation editor","Data math","Gating","Electrical
delay(s)","Phase offset(deg)","Fault location","Parameter conversion","Smoothing","SRL"
%"Trace1","|Z|","MLIN","GPRT","OFF","NORM","OFF","0","0","OFF","OFF","OFF","OFF"
%"Trace2","Theta-z","PHAS","GPRT","OFF","NORM","OFF","0","0","OFF","OFF","OFF","OFF"
%"Trace3","TR","REAL","GPRT","OFF","NORM","OFF","0","0","OFF","OFF","OFF","OFF"
%"Trace4","TR","REAL","GPRT","OFF","NORM","OFF","0","0","OFF","OFF","OFF","OFF"
%"Impedance Method","Input Impedance T","Input Impedance R","Input Attenuator T","Input Attenuator R"
%"GSH","50","50","0","20"
%"GSH","50","50","0","20"
%"N/A","50","50","0","20"
%"N/A","50","50","0","20"
%Frequency,Tr1_|Z|_Corr_data_Re,Tr1_|Z|_Corr_data_Im,Tr1_|Z|_Fmt_data_Re,
+1.000000000000E+001,+4.54692584952E-001,+1.76989354691E+000,+1.82736655168E+000,...
+1.07956418464E+001,-2.61986179008E+000,+2.46563568033E+000,+3.59764299330E+000,...
+1.15912836928E+001,+1.16861252940E-001,-1.31912947756E+000,+1.32429571132E+000,...
+1.23869255392E+001,-1.43535837247E+000,+1.28340339723E-001,+1.44108462632E+000,...
+1.31825673856E+001,+7.11334717499E-001,+1.01865685084E+000,+1.24244068674E+000,...
```

Note: File name is automatically assigned as follows,
Input filename + “_” + Channel number + “.dat”

Sample: TraceData_001.dat)

2.4 CITIFile

This mode saves the data as CITIFile version A.01.00 format.

Note: The channel data that is selected the power sweep and DC Bias sweep are not saved.

Sample case: Saved data with CITIFile format.

```
CITIFILE A.01.00
#E5061B MY49100053 A.02.00
#FORMAT TR1 PLIN
#FORMAT TR2 PLOG
#FORMAT TR3 POL
#FORMAT TR4 SWR
#FORMAT TR5 REAL
NAME FORMATTED
VAR FREQ MAG 5
DATA S[1,1] RI
DATA S[2,1] RI
DATA S[1,2] RI
DATA A[1] RI
DATA R1[1] RI
SEG_LIST_BEGIN
SEG 10000 3000000000 5
SEG_LIST_END
BEGIN
+8.81008756698E-001,-5.37583705873E+001
+9.35340379449E-002,+2.42290239557E+000
+8.83310861554E-001,-5.31041567686E+001
+9.37124399125E-002,+3.41131468381E+000
+8.85604328325E-001,-5.24505221679E+001
END
BEGIN
-2.57763742830E+000,+1.33199363937E+002
-7.98005659457E+001,+1.72394549289E+002
-7.16567085987E+001,-6.17466331593E+001
...
END
```

CITIFile version number.
Model#, S/N and FW version number.

Trace number data format.
(It is displayed when formatted data or formatted memory is selected.)

Note1
5:NOP (the number of points)

S[1,1]: Measurement parameter of trace 1.
"RI" is always displayed as format.

Note2

Note3

Note 1: Name keyword

Corrected Data : NAME DATA
Corrected Memory : NAME MEMORY
Formatted Data : NAME FORMATTED
Formatted Memory : NAME FORMATTED_ MEMORY

Note 2: Output data is changed based on the Sweep type.

Lin Freq: SEG_LIST_BEGIN keyword
Log Freq: VAR_LIST_BEGIN keyword

Segment: VAR_LIST_BEGIN keyword
Power Sweep: Power sweep is not saved.
DC Bias Sweep: DC Bias sweep is not saved.

Note3: BEGIN keyword

Output the array data that is selected between "BEGIN" and "END". Real part and Imaginary part is divided by comma.

Note 4: File name is automatically assigned as follows, based on the selection at Define data saves.

Corrected Data: File name + ".D" + channel number (Sample:TraceData.D1)
Corrected Memory: File name + ".SM" + channel number (Sample:TraceData.SM1)
Formatted Data: File name + ".F" + channel number (Sample:TraceData.F1)
Formatted Memory: File name + ".FM" + channel number (Sample:TraceData.FM1)